This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

473.2
.U52
M3
M46

BUHR B

a39015 00001514 2b

[illegible] STATE BOARD OF FORESTRY

[illegible]

[illegible]

THE WOOD-USING INDUSTRIES OF MARYLAND

BY

HU MAXWELL, EXPERT

United States Forest Service

WITH A CHAPTER OF

MARYLAND'S LUMBER AND TIMBER CUT AND THE TIMBER SUPPLY

BY

F. W. BESLEY

PREPARED IN COOPERATION WITH THE UNITED STATES FOREST SERVICE, UNDER THE DIRECTION OF F. W. BESLEY, STATE FORESTER, AND [illegible], IN CHARGE OF [illegible] LITERATURE, UNITED STATES FOREST SERVICE

BALTIMORE, MD.

[illegible]

Digitized by Google

Digitized by Google

MAR 13 1914

Forest

MARYLAND STATE BOARD OF FORESTRY

WM. BULLOCK CLARK
Executive Officer

F. W. BESLEY
State Forester

THE WOOD-USING INDUSTRIES OF MARYLAND

BY

HU MAXWELL, EXPERT
United States Forest Service

WITH A CHAPTER ON

MARYLAND'S LUMBER AND TIMBER CUT AND THE TIMBER SUPPLY

BY

F. W. BESLEY

PREPARED IN COOPERATION WITH THE UNITED STATES FOREST SERVICE, UNDER THE DIRECTION OF F. W. BESLEY, STATE FORESTER, AND H. S. SACKETT, IN CHARGE OF WOOD UTILIZATION, UNITED STATES FOREST SERVICE

BALTIMORE, MD.
1910

FORESTRY DEPARTMENT

Digitized by Google

Forestry
SD
473.2
.U52
M3
M46

Digitized by Google

CONTENTS

	PAGE
Introduction	5
Wood-manufacturing in Maryland	9
Kinds, Quantities, and Cost of Wood	10
Industries	12
Wood Used by Different Industries	13
Boxes and Crates	14
Interior Finish	16
Furniture	18
Cooperage	21
Baskets	23
Ships and Boats	25
Horse Vehicles	28
Tanks and Silos	30
Cigar Boxes	31
Brushes	32
Store and Office Fixtures	33
Musical Instruments	34
Miscellaneous	36
Amounts by Counties	38
Lessening the Waste	39
Forms in Which Wood Reaches Factories	40
Reported Sources of Woods	41
Uses by Species	43
Wood Manufacturers	47
Baskets	47
Boxes and Crates	47
Cigar Boxes	47
Cooperage	47
Furniture	48
Horse Vehicles	48
Interior Finish	48
Musical Instruments	48
Ships and Boats	49
Silos and Tanks	49
Store and Office Fixtures	49
Miscellaneous	49
Maryland's Lumber and Timber Cut and the Timber Supply	53
Introduction	53
Cut of Lumber, Lath and Shingles for 1908	54
Lumber and Timber Cut	55

Digitized by Google

PAGE

Timber and Wood Consumption for 1908 55
Cut of Miscellaneous Forest Products for 1908 56
The Timber Resources 56
Wooded Area, Amount and Value of Standing Timber in Maryland ... 57
Relation of Present Stand of Timber to the Demand 58

Digitized by Google

INTRODUCTION

The Bureau of the Census, in cooperation with the United States Forest Service, compiles and publishes statistics annually showing the output of sawmills by States and for the whole country. The cut in Maryland in 1908 was 168,534,000 feet, board measure, reported by 384 sawmills. This was one-half of 1 per cent of the total cut in the United States for that year, and was a falling off of more than 21 per cent from Maryland's lumber cut for 1907. The decline was general throughout the country in that year, and for the United States was 17½ per cent. The lumber output as shown in these figures does not include pulpwood, tanbark, tanning extracts, cross-ties, telegraph and telephone poles, or cooperage and veneer stocks.

After lumber leaves the sawmill it serves many useful purposes. Some of it passes through no additional process of manufacture but goes into buildings with only the cutting and fitting which carpenters give it. Another part is further manufactured before it is used. Wood-working machines of many kinds change its form, and it is cut and fitted by skilled labor, and the rough lumber is converted into finished products, such as boxes, frames, doors, sash, vehicles, boats, baskets, musical instruments, furniture, brushes, toys, handles, novelties, and many more. This study has to do with that part of the lumber only which passes through further process of manufacture after it leaves the sawmill.

Heretofore, lumber has not been very carefully followed after leaving the saw, to ascertain what becomes of it, what new forms are given it, and into what commodities it enters. It has been known in a general way that some of it is used in its rough form, while some passes through additional processes of manufacture. The present study of the wood-using industries of Maryland was undertaken to supply information concerning the lumber which is not used in its rough form. The work has been done by the United States Forest Service in cooperation with the State of Maryland. Industries which manufacture

Digitized by Google

commodities partly or wholly of wood were asked to furnish data along their special lines, and this report is based on their replies, supplemented by independent investigation in all parts of the State.

Statistics thus collected and published are expected to be useful to both the growers and the manufacturers of wood. It is shown what part of the total demand, and the demand for each species, is met by forests and woodlots of the State, and what part is supplied from without. The kinds of wood demanded by the various industries are shown, together with the quantity of each species used, the prices paid at the factories, and into what commodity each wood is manufactured. With this information before them, the woodlot owners who are looking to the future can determine what kinds of timber promise best returns, and they can give preference to those kinds. Owners of timber can form an intelligent opinion as to where the best markets may be found for what they have to offer. On the other hand, the manufacturer who is in the market for woods of certain kinds will have the means to determine whether he can buy near home or whether he must look beyond the State; and a study of average prices paid by others will show whether or not he has been buying on an equal footing. A closer acquaintance between buyer and seller, with a better understanding of what one has to sell and the other wishes to buy, will be of mutual benefit. The utilization of factory waste is an important problem, and it was duly considered in this study. An attempt was made also to ascertain and note the smallest sizes of lumber that the various industries can profitably use.

A history of lumber operations and markets, and of past uses of wood in the State was not undertaken, though it would have brought out many interesting facts. It was deemed sufficient if present conditions were shown, thereby making it possible to formulate an intelligent policy for future operations.

Digitized by Google

MARYLAND'S
WOOD-MANUFACTURING INDUSTRIES

Digitized by Google

Digitized by Google

WOOD-MANUFACTURING IN MARYLAND

Maryland manufacturers converted 284,346,895 feet of rough lumber into finished products in 1909. These figures do not show the total quantity of wood of all kinds and for all purposes used in the State, perhaps not half of it. They deal only with that portion of the cut of sawmills which, after it leaves the saw, is further worked by machinery, or, at least, by the expenditure of considerable labor upon it before it takes its final form. Lumber which goes into what is generally known as rough construction is not included, nor are railroad ties, telegraph and telephone poles, mine props, wharf piles, fence posts, shingles, and clapboards. The mere cutting off or mortising of beams and planks to fit them in frames, trestles, and bridges, does not constitute sufficient manufacture to bring them within the scope of this study. Many finished commodities are shipped into the State ready for use, and these, too, are excluded from the tables which follow, because the manufacturing was not done in Maryland. Much furniture and woodenware fall in this class, and many vehicles. The distinction between commodities manufactured in Maryland and those made elsewhere and shipped in to be sold, excludes large quantities of planed and matched flooring which comes from mills in the South and West, and much interior finish and turned work.

The cost at the factory of the wood used by the Maryland manufacturers was $5,878,631, or an average price of $20.67 per thousand feet board measure. The average cost of state-grown wood was $14.44 per thousand, and of that shipped into the State from the outside, $22.25. The State supplied 57,530,500 feet, and the balance, or 226,816,395 feet, came from other States, and to a small extent from foreign countries—20 per cent being state-grown—at a total cost of $830,679.66, and 80 per cent from the outside at a cost of $5,047,952. No attempt has been made to ascertain or estimate the value of the finished commodities made of wood in the State. The market for these products is world-wide. In many instances a single manufacturer

Digitized by Google

ships to every continent, and there are few important commercial cities in the world to which articles wholly or partly of wood, and made in Maryland, do not go.

The principal primeval forests of the State were culled or cut out long ago, but new growth has been extensive and valuable. The cut

TABLE 1.—*Kinds of Wood used, Quantity of Each, with Total Cost, and the Per Cent grown in the State and out.*

Species.	Feet used. B. M.	Cost at factory.	Grown in Maryland. (Approximate per cent.)	Grown outside of Maryland. (Approximate per cent.)
Loblolly pine	130,699,500	$1,886,355	25	75
Longleaf pine	27,899,000	702,212	..	100
White oak	22,030,300	844,000	15	85
Cypress	19,274,500	519,465	..	100
Scrub pine	17,000,000	173,500	65	35
Yellow poplar	11,107,000	278,661	10	90
Tupelo	10,416,000	162,597	4*	96
White pine	8,711,000	277,129	5	95
Red oak	5,597,500	48,985	26	74
Basswood	5,490,050	148,143	1	99
Chestnut	3,719,000	78,096	37	63
Red gum	3,133,000	46,240	77	23
Sweet birch	2,434,000	68,980	4	96
Hemlock	2,002,000	48,082	..	100
Sugar maple	1,924,000	48,779	9	91
Beech	1,672,000	31,332	3	97
Sugar pine	1,360,000	53,950	..	100
Cottonwood	1,015,000	17,470	..	100
White elm	1,010,000	18,990	30	70
Locust	936,000	16,200	100	..
Ash	897,675	35,246	7	93
Spanish cedar	871,000	26,030	..	100
Spruce	713,000	23,990	..	100
Pitch pine	626,000	9,235	98	2
Hickory	557,000	25,227	50	50
Black walnut	548,500	48,210	1	99
Circassian walnut	506,500	101,125	..	100
Mahogany	483,500	76,775	..	100
Douglas fir	262,000	13,840	..	100
White cedar	252,000	10,660	..	100
Chestnut oak	220,000	4,400	75	25
Cherry	209,500	11,591	3	97
Yellow buckeye	200,000	4,000	..	100
Sycamore	160,000	2,350	62	38
White birch	152,000	3,090	..	100
Black gum	85,000	2,450	70	30
Red cedar	61,000	2,570	..	100
Balsam fir	50,000	1,000	..	100
Dogwood	16,000	390	100	..
Teak	10,200	2,540	..	100
Live oak	10,000	400	..	100
Lignum-vitae	7,070	3,300	..	100
Hackmatack	5,000	250	..	100
Rock elm	4,000	104	..	100
Cucumber	3,000	120	67	33
Red mulberry	2,000	56	..	100
Pin oak	2,000	60	50	50
Butternut	1,000	15	..	100
Rosewood	600	220	..	100
French walnut	500	125	..	100
Holly	350	36	..	100
Ebony	100	50	..	100
Tulip wood	25	5	..	100
Boxwood	25	5	..	100
Total	284,346,895	$5,878,681	20	80

* It is not improbable that some of the wood reported as tupelo was black gum.

Digitized by Google

of loblolly pine is larger than that of any other two species, and the greater part of the loblolly is second growth. Of the fifty-four woods reported by the Maryland manufacturers, twenty-seven were supplied wholly or in part by the State, while the country at large and the world were drawn upon for the twenty-seven others. Nine of the woods reported do not grow in commercial quantities in the United States. They are boxwood, tulipwood, ebony, French walnut, rosewood, lignum-vitae, teak, mahogany, and Circassian walnut. Of the Maryland-grown pines, the largest use after loblolly was scrub pine (*Pinus virginiana*), a wood which was formerly seldom used for anything except fuel. The important place which it now occupies shows that efforts to utilize waste have been successful to an encouraging extent.

In compiling this report, a painstaking effort was made to keep species separate as far as it was practicable to do so. They were not grouped as "pine," "oak," "hardwoods," etc., but as white oak, red oak, live oak, longleaf pine, red gum, etc. The identification and listing were probably not successful in all cases, and in other instances, where use is confined almost exclusively to one species, though the genus includes others, a common term as "ash," or "hickory," was deemed sufficient. In Table 1, which follows, all the kinds of wood reported are brought together. In another part of this report, beginning on page 43, all the species are listed alphabetically, and the various uses reported for each are given.

The State produces two woods in sufficient amounts to meet the requirements of its manufacturers. These are locust and dogwood. They are not timber trees of first importance, yet they are of considerable value in Maryland. An exceptionally large use of locust was reported, the total being 936,000 feet, costing $16,200, while in 1908 all the mills in the United States reported an aggregate cut of only 1,327,000 feet. This should not be taken to mean, however, that Maryland produces and uses 70 per cent of the locust of the whole country. The figures are probably explained by the fact that the mills of the country reported only what they sawed into lumber, while the Maryland manufacturers included all the locust that came to them, only a very small part of which had ever been in a sawmill. Locust generally goes to the shop or factory as logs, billets, or treenails, and for this reason the report of sawmills includes only a small part of the country's total output of the wood. The sawmill output of dog-

Digitized by Google

wood in the United States in 1908 was 261,000 feet, and in 1909 the Maryland manufacturers used 16,000 feet, or 6 per cent of the reported total for the year before. The same explanation should perhaps apply to dogwood as to locust, namely, that much of the output goes to factories without passing through sawmills to be listed as lumber.

INDUSTRIES.

Maryland manufacturers put more lumber into boxes and crates than into any other industry, and if interior finish for houses is excluded, the quantity required for crates and boxes exceeds the combined demand for all other industries that manufacture wood. A smaller amount is made into interior finish, but it is of higher grade than the box lumber and costs more. Nearly 48 per cent of all the wood is made into packing cases of various kinds, and the total cost exceeds $1,800,000. Interior finish takes 28 per cent, but its total cost exceeds $2,200,000. Box lumber is the cheapest, basket material next, while the most costly is for musical instruments, $50.90, while that required for tanks and silos is only a little less, $48.13.

Manufactures are grouped under thirteen headings, shown in Table 2. These might have been subdivided, but by so doing the amount of wood used by each would have been reduced, and no corresponding advantage would have resulted. Cooperage and baskets are very closely related in some of their features, and in others they are far apart. The chief reason for making a separate division for cigar boxes, rather than include all under the heading of boxes and crates, was that cigar box making is a distinct business, certain woods are used almost exclusively, and those who make boxes for cigars seldom make any other kind. The average price of lumber that went into ordinary boxes was $13.31 per thousand, while cigar box wood costs more than twice as much.

Table 2 sets forth in condensed form the comparative amount and value of the lumber that was required by the different industries. The quantity used by all was 284,346,895 feet, and the average price was $20.67 per thousand. If these figures are borne in mind the table will show at a glance which industries paid more and which less than the average, and the comparative as well as the absolute quantity of lumber used by each one will be shown. A second part of the table

Digitized by Google

TABLE 2.—*Wood-using Industries, Cost of Lumber at the Factories, Per Cent which Each Industry used of the Total Quantity, and the Amount and Average Cost of State-grown and Outside-grown Woods.*

Industries.	Total quantity of lumber used. (Feet B. M.)	Average cost at factory per M. (f. o. b.)	Total cost.	Apportionment of the total quantity of lumber among the industries. (Approximate per cent.)	Grown in Maryland.		Grown outside Maryland.	
					Feet.	Average cost at factory per M feet.	Feet.	Average cost at factory per M feet.
Boxes and crates	136,273,000	$13.31	$1,813,578	47.92	37,293,000	$11.69	98,980,000	$13.92
Interior finish	81,356,000	27.46	2,234,040	28.61	9,118,500	22.05	72,237,500	28.14
Furniture	17,774,675	29.32	521,108	6.25	592,100	21.36	17,182,575	29.59
Miscellaneous	14,876,870	26.78	398,393	5.23 +	1,268,750	18.73	13,608,120	27.53
Cooperage	8,663,000	30.33	262,750	3.05 —	2,467,000	9.45	6,196,000	33.64
Baskets	7,136,000	13.77	98,235	2.51 —	3,425,000	12.76	3,711,000	14.69
Boats	6,350,700	34.69	220,302	2.24 —	1,648,600	31.02	4,702,100	35.97
Tanks and silos	2,539,000	48.13	122,215	.89 +	.....	.....	2,539,000	48.13
Cigar boxes	2,374,000	29.87	70,920	.83 +	.....	.....	2,374,000	29.87
Horse vehicles	1,956,300	36.89	72,180	.69 —	1,083,050	29.96	873,250	59.95
Brushes	1,830,000	14.92	27,300	.64 +	600,000	7.50	1,230,000	18.54
Store and office fixtures	1,658,000	40.40	66,990	.58 +	.....	.....	1,658,000	40.40
Musical instruments	1,559,350	50.90	79,364	.55 —	34,500	34.61	1,524,850	51.26
Total	284,346,895	$20.67	$5,878,631	....	57,530,500	$14.44	226,816,395	$22.25

Digitized by Google

separates the wood for each industry into that grown in the State and that brought from without, and cost is figured on that basis. In every case the average cost of lumber from without was greater than that grown in the State, which is no cause for surprise since freight is in all cases added to the mill prices, and the longer the haul the higher the freight must be. The average cost in the State was $14.44 and outside $22.25. The difference in some instances is much greater than the difference in freight between the home and the outside haul. The wood for horse vehicles, for instance, costs $29.96 if grown in Maryland, and twice as much if brought from without. The reason for this can not be shown in a table condensed from hundreds of reports as this one is, but it is safe to conclude in all cases where the difference in cost is so great, that the higher price was paid for a much higher class of wood. The difference is even greater in the cost of wood for cooperage, and for the same reason. Perhaps the difference in cost between state-grown and imported box lumber very nearly represents the difference in freight, for there was little difference in the kinds of lumber used. It is worthy of note that three of the industries listed in the table reported the use of no Maryland-grown wood. These are tanks and silos, cigar boxes, and store and office fixtures.

BOXES AND CRATES.

Seventeen kinds of wood are used by the box makers of Maryland, who consume 136,000,000 feet a year or nearly 48 per cent of all the wood demanded by the manufacturers of the State for all purposes. Loblolly pine heads the list in quantity and cost, and scrub pine is second with 17,000,000 feet. The bulk of the cut of scrub pine in the State was bought by box makers, and it was their cheapest material. The Maryland product cost $8.18 per thousand feet, and the imported scrub pine, which came principally from Virginia, averaged $13.92. The Maryland-grown wood of this species was the cheapest of all the lumber reported by the manufacturers of the State. It has been extensively cut for fuel for many years, but its use for lumber is of a more recent date. The trees are usually small and knotty, and the logs are often sawed in wane-edge boards and go in that form to the box mills where they are run through edgers, and are then cut to required lengths for boxes and crates. The home-grown loblolly costs

Digitized by Google

$2 a thousand more than scrub, but that brought from without the State costs nearly $1 a thousand less, as is shown in Table 3.

A large portion of the demand for boxes comes from the fruit and vegetable growers in the eastern part of the State. Another large demand comes from the wholesale merchants of Baltimore who use great numbers of packing cases in which to ship dry goods and other merchandise. The two classes of boxes are quite distinct. Those for dry goods are of better material, are better made, are generally larger, and cost more. A large part of the pine bought outside the State by Maryland box makers goes into the merchandise-packing cases. It is more expensive than the home-grown pine.

TABLE 3.—*Boxes and Crates.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Loblolly pine	98,799,000	$13.30	$1,314,099	24,082,000	$12.97	74,717,000	$13.41
Scrub pine	17,000,000	10.21	173,500	11,000,000	8.18	6,000,000	13.92
Tupelo	7,790,000	13.69	106,680	360,000	13.93	7,430,000	13.68
White pine	4,195,000	20.31	85,202	365,000	14.17	3,830,000	20.89
Yellow poplar	3,558,000	15.98	56,865	586,000	14.42	2,972,000	16.29
Cypress	3,320,000	13.96	46,340	.....	.....	3,320,000	13.96
Pitch pine	615,000	14.41	8,860	600,000	14.50	15,000	10.66
Longleaf pine	355,000	25.35	9,000	.....	.....	355,000	25.35
Buckeye	200,000	20.00	4,000	.....	.....	200,000	20.00
Basswood	100,000	23.00	2,300	.....	.....	100,000	23.00
Red gum	100,000	23.00	2,300	100,000	23.00	.....	.....
Chestnut	94,000	13.19	1,240	.....	.....	940,000	13.19
Sugar maple	50,000	25.00	1,250	.....	.....	500,000	25.00
Beech	50,000	20.00	1,000	.....	.....	500,000	20.00
Cottonwood	25,000	28.00	700	.....	.....	250,000	28.00
Hemlock	22,000	11.00	242	.....	.....	220,000	11.00
Total	136,273,000	$13.31	$1,813,578	37,093,000	$11.69	99,180,000	$13.92

Many boxes are made of tupelo, and they are often preferred to pine for packing provisions. The wood is not liable to impart taste or odor to the contents of the packages, though in this respect it is not preferred to yellow poplar or basswood. It is probable that the tupelo reported by manufacturers as growing in Maryland was some other wood of similar appearance, as the commercial range of tupelo extends into Maryland very little, if at all.

White pine was once the chief box material in all regions where it grew. It was strong enough, was light in weight and handsome in appearance, and was so satisfactory that its gradually advancing cost was the only reason for the substitution of other woods. More than

Digitized by Google

4,000,000 feet a year are still used in Maryland, notwithstanding its high price—twice that of scrub pine. It is a favorite material for shoe boxes, and for packing provisions. There are woods, however, which are preferred to any of the pines as packing boxes for provisions and confectionery. Among these are yellow poplar, basswood, cottonwood, and buckeye. These are light in weight and fairly light in color, but what gives them their chief value is that they are not liable to impart stain or odor to articles packed in them. Practically all the buckeye reported was made into candy and chocolate boxes, and a considerable part of the yellow poplar went for the same purpose. The box makers drew largely from cypress, but they used low grades, as the price indicates. Its average cost was under that of pitch-pine box lumber grown in Maryland. It is worthy of note that pitch pine bought by box makers was one of the woods which cost less when brought from without the State than when cut within. The supply from without came from Pennsylvania.

INTERIOR FINISH.

Eleven per cent of all the wood manufactured into interior finish grew in Maryland, and the home-grown constituted 9 per cent of the total value. The next largest in quantity used was loblolly pine, about one-fourth of which grew in Maryland. The next two woods most extensively used were not supplied in any part by the State, but came wholly from the South. They were longleaf pine and cypress. Of the 81,000,000 feet of lumber manufactured into interior finish in the State, 66,000,000 feet, or 81 per cent, were soft woods. White oak headed the list of hardwoods with less than 8 per cent of the total, or about 40 per cent of the total of the hardwood lumber. Its average cost was exceeded by seven woods on the list, as shown in Table 4, and one of these was white pine. The state-grown white oak cost $21 a thousand more than the imported. An examination of the reports of the manufacturers fails to explain why this was so, on any other ground than that the home-grown wood was of better quality and was better suited to the purposes for which it was bought. One-fourth of the white oak was cut in Maryland. The output of all kinds of oak lumber in 1908 for Maryland was about 45,000,000 feet, and its value at the mills averaged $18.57 per thousand. The most of this

Digitized by Google

was white oak, but exactly how much of it is not known. It is evident that a comparatively small amount of it was made into interior finish, and that small amount was carefully selected.

Nearly one-third as much red oak as white oak was used, and strangely enough, that which was cut in the State was very cheap, and that brought from without was more costly than the imported white oak, or more than three times as expensive as the red oak grown at home. In fact, as may be seen in Table 4, the Maryland-grown red oak was the cheapest lumber bought by the makers of interior finish. The very low price is to some extent due to the practice of some makers of finish who buy the logs and do their own sawing, and figure that the cost is what they pay for logs delivered at their mills.

Twenty-three woods are listed as material for interior finish, ranging in amount from longleaf pine down to butternut, and in price from Circassian walnut at $200 a thousand to loblolly pine at $14.80. Eleven of these were cut in part in Maryland.

Sugar pine holds an important place in this industry, and is ninth as to quantity in the list of twenty-five woods, and ninth as to value. It comes from California and Southern Oregon, and resembles white pine. It is the only far-western wood listed among the interior-finish materials in Maryland. The whole importation of sugar pine into the State, except 50,000 feet, was used in this industry. It is made into blinds, doors, sash, and frames.

A small quantity of live oak was reported from Virginia and North Carolina. This wood has seldom been listed for any commercial purpose other than shipbuilding, and for that reason its newly-found place among interior-finish materials is important, though the amount used is not large. It emphasizes a tendency to find uses for timbers heretofore neglected.

All of the cucumber reported by the manufacturers in the State went into interior finish, and the quantity was small. The output of cucumber in the United States in 1908 was 21,000,000 feet, and the chief cut was in Pennsylvania and West Virginia, States bordering on two sides of Maryland. Being in such close proximity to the principal sources of supply, it is remarkable that so small a quantity found use in Maryland.

All the butternut reported in the State was made into interior finish,

Digitized by Google

and the amount was very small. This wood has never been of much importance for lumber, though of excellent quality, and its importance will probably grow less in the future because the tree is becoming more valuable for its nuts than for its wood.

Ninety-six per cent of all the black walnut manufactured in Maryland was made into interior finish, and not a foot of that made into finish grew in the State. Only two of the woods used were more costly, and they were imported—mahogany and Circassian walnut. The quantity of Circassion walnut was comparatively large, and 99 per cent of all that was imported was made into finish. In value it is seventh on the list, though in quantity it is thirteenth.

TABLE 4.—*Interior Finish.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Loblolly pine	23,390,000	$18.98	$444,028	5,263,500	$14.32	18,126,500	$20.34
Longleaf pine	22,945,000	23.69	543,600	.....	.....	22,945,000	23.69
Cypress	14,261,000	27.46	391,630	.....	.....	14,261,000	27.46
White oak	6,133,000	37.70	231,200	1,555,000	53.82	4,578,000	32.22
Yellow poplar	3,205,000	35.43	113,565	277,000	27.73	2,928,000	36.16
White pine	3,095,000	40.24	124,550	60,000	28.83	3,035,000	40.48
Red oak	1,993,000	20.00	38,875	1,318,000	12.73	675,000	34.07
Sugar pine	1,310,000	40.88	53,550	.....	.....	1,310,000	40.88
Sweet birch	1,155,000	30.90	35,680	.....	.....	1,155,000	30.90
Chestnut	1,055,000	27.48	28,990	580,000	25.12	475,000	30.35
Hemlock	980,000	20.24	19,840	.....	.....	980,000	20.24
Black walnut	528,000	89.66	47,340	.....	.....	528,000	89.66
Circassian walnut	500,000	200.00	100,000	.....	.....	500,000	200.00
Mahogany	224,000	188.61	42,240	.....	.....	224,000	188.61
Spruce	182,500	27.52	5,022	.....	.....	182,500	27.52
Sugar maple	140,000	36.78	5,150	30,000	25.00	110,000	40.00
Ash	107,000	36.96	3,955	11,000	19.54	96,000	38.95
Basswood	53,000	25.11	1,331	22,000	18.22	31,000	29.93
Fir	50,000	20.00	1,000	.....	.....	50,000	20.00
Cherry	36,000	26.66	960	.....	.....	36,000	26.66
Live oak	10,000	40.00	400	.....	.....	10,000	40.00
Cucumber	3,000	39.66	119	2,000	33.50	1,000	52.00
Butternut	1,000	15.00	15	.....	.....	1,000	15.00
Total	81,356,000	$27.46	$2,234,040	9,118,500	$22.05	72,237,500	$28.14

FURNITURE.

Lumber for furniture-making was third on the list in Maryland in quantity and cost. It was 22 per cent of the amount made into interior finish, 13 per cent of the box lumber, and 6¼ per cent of all the wood manufactured in the State. In value it was 29 per cent of box material, 22 per cent of interior finish, and a little less than 9 per cent of all the woods reported. The average cost per thousand was nearly $2 more than for interior-finish lumber, but was less than that

Digitized by Google

bought for cooperage, tanks, boats, wagons, office fixtures, and musical instruments. Of the twenty-five woods listed, only eight were bought in Maryland, and not one was wholly a State product. The total quantity was 17,774,675 feet, as shown in Table 5, and less than 600,000 feet of it grew in Maryland. Nearly half of the whole quantity was white oak, and it made up more than half the value. That which was imported into the State cost nearly $10 a thousand more than the home product, and was 98 per cent of the total. Twelve of the woods on the list cost more per thousand than the white oak, and twelve cost less. Its average cost was $2.54 per thousand more than the average for all.

Furniture makers paid 81 cents per thousand more for red oak than for white oak, and all the red oak came from without, from as far west as Indiana, as far south as North Carolina, but chiefly from Pennsylvania and West Virginia. This wood was second on the list in quantity and value, and more than half of all of it used in the State was made into furniture. Some of the furniture makers express no preference for white oak over red oak, particularly for tables.

Sugar maple holds an important place as a furniture wood, and 75 per cent of all reported by manufacturers in Maryland was used in furniture factories. Less than 10 per cent of it was home-grown, though the price paid for Maryland maple indicated that it was considered much superior to that from elsewhere. The price for the home product was $3.79 per thousand more. The average value of maple in the United States, at the mills and including the whole cut, was $16.30 in 1908. Based on this, it would appear that the Maryland furniture makers bought their maple at a very reasonable price. It is worthy of remark that the Maryland furniture manufacturers reported the purchase of maple lumber from all six of the New England States, and not a manufacturer of any commodity in the State reported a purchase of this wood from farther west than West Virginia. Nearly one-half of all the maple lumber of the United States is cut in Michigan, and that State is generally considered the chief source of supply, and no explanation has been found of the fact that Maryland manufacturers reported no purchases there.

The yellow poplar manufactured into furniture cost, on an average, $14.59 per thousand less than that made into interior finish. When used as finish it is the outside visible wood and is selected for its

Digitized by Google

appearance; but much of that employed in furniture is made into backs, sides, and bottoms of drawers, into shelves, pigeon holes, partitions and compartments in desks, chiffoniers, and sideboards, and high-grade lumber is not demanded. The average mill-run value of yellow poplar in the United States in 1908 was $25.30 per thousand feet. The Maryland furniture makers had theirs delivered at their factories at $4.46 less.

Chestnut was fifth in quantity and sixth in value in the list of furniture woods, and there was little difference in the cost per thousand of the home-grown and the imported lumber. The average mill-run value of chestnut in Maryland in 1908 was $14.39, and for the whole country $16.27. The manufacturers used this wood both as the outside, visible material, and as the hidden frames, and for that reason they can find a place for about all grades that come from the mills. The State supplied 17 per cent of chestnut used in this industry, and the principal part of the importations were from Pennsylvania and West Virginia.

The sweet birch reported was practically all from other States, and its price was nearly $10 a thousand higher than the average price of the wood at the mills for the whole country in 1908. It is the outside material when manufactured in furniture, and a good grade is demanded.

Basswood, which in quantity was next to sweet birch, and in average value was almost identical with it, is the inside material when made into such furniture as depends on appearance for value; but when used in kitchen and laundry furniture it frequently forms the entire article. Its white color, its freedom from odor, and the ease with which it may be kept in a sanitary condition, make it popular for kitchen and pantry safes, and for cupboards. The average mill-run value of basswood in 1908 for the whole country was $20.50. The Maryland furniture makers paid an average price of $26.08 for theirs. They bought it in the six States, Maryland, Kentucky, Tennessee, Wisconsin, Virginia, and West Virginia.

Little black walnut was made into furniture in Maryland. It was formerly in much demand for that purpose, but other woods have now taken its place, and the walnut goes to other industries. Of the twenty-five woods on the Maryland furniture list, black walnut is next to the least in quantity, French walnut alone falling below it. The amount

Digitized by Google

of cherry is also disappointing, as shown by Maryland reports, and is doubtless much smaller than it was several years ago, though there are no statistics to show it. Sweet birch has largely taken the place of cherry as a furniture wood. It has done so because it is cheaper. The Maryland furniture manufacturers paid $72.92 a thousand for cherry, and only $26.02 for birch.

Only three foreign woods were reported, mahogany, Circassian walnut, and French walnut, and in the aggregate they constituted only one-fifth of 1 per cent of the total furniture wood. No French walnut was reported for any other industry.

TABLE 5.—*Furniture.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
White oak	8,466,000	$31.86	$269,729	188,300	$22.41	8,277,700	$32.04
Red oak	3,177,500	32.67	103,825	.....	.....	3,177,500	32.67
Sugar maple	1,441,000	23.96	34,525	136,000	27.39	1,305,000	23.60
Yellow poplar	1,166,000	20.84	24,303	60,000	17.41	1,106,000	21.03
Chestnut	1,040,000	18.41	19,151	177,000	18.02	863,000	18.48
Sweet birch	896,000	26.02	23,315	2,000	15.00	894,000	26.04
Basswood	650,000	26.08	16,950	.....	.....	650,000	26.08
Beech	302,000	20.80	6,282	.....	.....	302,000	20.80
White birch	150,000	20.00	3,000	.....	.....	150,000	20.00
Tupelo	125,000	44.49	5,562	.....	.....	125,000	44.49
Ash	72,175	22.88	1,651	3,300	16.66	68,875	23.17
Longleaf pine	66,000	31.09	2,052	.....	.....	66,000	31.09
Sycamore	50,000	15.00	750	25,000	15.00	25,000	15.00
Loblolly pine	90,000	16.47	1,482	.....	.....	90,000	16.47
Mahogany	30,000	144.33	4,450	.....	.....	30,000	144.33
Cypress	10,000	48.00	480	.....	.....	10,000	48.00
White pine	10,000	80.00	800	.....	.....	10,000	80.00
Red gum	8,000	40.00	320	.....	.....	8,000	40.00
Cherry	6,500	72.92	474	500	16.00	6,000	77.66
Sugar pine	5,000	80.00	400	.....	.....	5,000	150.00
Circassian walnut	5,000	150.00	750	.....	.....	5,000	80.00
White cedar	5,000	90.00	450	.....	.....	5,000	90.00
Black walnut	3,000	94.00	282	.....	.....	3,000	94.00
French walnut	500	250.00	125	.....	.....	500	250.00
Total	17,774,675	$29.32	$521,108	592,100	$21.36	17,182,575	$29.59

COOPERAGE.

It is not always an easy matter to distinguish between cooperage and basket-making on the one hand and box-making on the other. Coopers are divided into two general classes; those who make vessels to contain liquids, and those who manufacture barrels and kegs intended for dry articles, such as nails, sugar, flour, apples, and similar commodities. Tight cooperage is a term applied to the manufacture of vessels for liquids, and slack cooperage applies to the making of other

Digitized by Google

kinds. A much higher class of wood is required for tight cooperage than for slack, and comparatively few woods are suitable for the highest class vessels of all, those which are to hold spirituous liquors. White oak has long been considered the best available wood for such work, but the increasing scarcity of this timber of suitable grade has stimulated the search for substitutes, and some success has attended the search. There are different kinds of tight cooperage, and wood which can not be employed for one may answer very well for some other.

Slack cooperage is also of different kinds, and woods serving for one kind may not do for another. A resinous wood, strong with the odor of turpentine and readily imparting a disagreeable taste to absorbent articles of food brought in contact with it, would scarcely be made into flour and sugar barrels, but would be unobjectionable for nail kegs. The gradation is regular and unbroken from the highest class of slack cooperage down to vessels so open and flimsy that they will hold little else than vegetables and coarse merchandise, while one grade lower passes from cooperage to berry and fruit baskets, and vessels of a similar kind.

Table 6 gives a list of the eleven woods reported by Maryland coopers. These woods are used in both tight and slack cooperage, but the table does not distinguish between them; in fact, the distinction could not, in all cases, be made from the available data. The price paid for white oak indicates that the most of that shipped into the State, which was 95 per cent of the total amount used, was employed in tight cooperage. The cost of the Maryland-grown white oak was so low that it was evidently suitable for slack cooperage only. The same process of reasoning will place the loblolly, which was 32 per cent of the whole amount of wood reported, in the slack-cooperage list. The cottonwood was nearly all made into flour barrels, and the elm into lime and cement barrels, while the red oak was made into flour barrels and a good grade of fruit barrels. The cypress and the red cedar, though they were not largely used, were tight-cooperage woods. Both are excellent materials for cider and vinegar barrels. Yellow poplar is good for many kinds of slack-cooperage vessels, and is particularly suitable for tobacco hogsheads, and has been used for that purpose in Maryland for 200 years.

Digitized by Google

The coopers in the State paid a higher average price for white oak than was paid by any other industry, except tank builders, and a lower price for red oak. Red gum was the only wood wholly supplied by Maryland, while seven of the eleven on the list were supplied wholly from outside States. A striking difference is noted between the average cost of home-grown wood and that from without, the latter being more than four times as high. The State produced 28 per cent of all the wood used in the cooperage industry.

TABLE 6.—*Cooperage.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
White oak	3,024,000	$63.71	$192,675	157,000	$13.22	2,867,000	$66.48
Loblolly pine	2,720,000	9.91	26,950	2,220,000	8.99	500,000	14.00
Tupelo	1,015,000	13.37	13,575	.....	....	1,015,000	13.37
Cottonwood	750,000	15.00	11,250	.....	....	750,000	15.00
White elm	425,000	16.47	7,000	.....	....	425,000	16.47
Yellow poplar	425,000	16.47	7,000	.....	....	425,000	16.47
Red oak	230,000	9.78	2,250	50,000	15.00	180,000	8.33
Red gum	40,000	13.75	550	40,000	13.75	.....	....
Cypress	20,000	50.00	1,000	.....	....	20,000	50.00
Longleaf pine	9,000	35.00	315	.....	....	9,000	35.00
Red cedar	5,000	37.00	185	.....	....	5,000	37.00
Total	8,663,000	$30.33	$262,750	2,467,000	$9.45	6,196,000	$38.64

BASKETS.

Tupelo was the only wood used by the basket makers of Maryland that was not supplied wholly or in considerable part by the forests of the State, as Table 7 sets forth. The entire cut of beech and maple came from Maryland, though the quantity of neither was large. The cost of the beech was very low and was based on logs delivered at the factories, and not on sawed lumber. Much of it was cut in veneer and was made into small berry baskets or light fruit baskets. In fact, most of all the wood reported by basket manufacturers was made into veneer, the exception to this being in the bottoms and bands, and in some cases in the covers.

The wood of highest average price was white elm, which is the common elm so largely planted for shade. Though the average price was highest of all the ten species in the list of basket woods, the high price applied only to the elm shipped into the State, while that grown in Maryland was only $7 a thousand, the same as beech. That price, as

Digitized by Google

in the case of beech, was based on logs, and not on sawed lumber. The elm from without cost more than four times as much, or $33 a thousand, and three-fourths of all came from without. Michigan furnished most of it, but shipments were reported from New Jersey, Ohio, Virginia, and West Virginia. The average price of elm for the whole country in 1908 was $18.40 per thousand. The Maryland basket makers paid $8.10 per thousand more. The toughness of the elm makes it suitable for hoops or bands round the tops of baskets, and a large part of it was so used. The demand for a cheaper wood for this purpose is extensively felt, and many substitutes have been tried. It is claimed that river birch, which grows plentifully in Maryland, answers fairly well, but no manufacturer reported its use for that purpose. Some of the sweet birch reported may have been used for hoops.

TABLE 7.—*Baskets.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Red gum	2,885,000	$14.30	$41,270	2,285,000	$14.04	600,000	$15.31
Loblolly pine	2,536,000	12.08	30,640	700,000	9.14	1,836,000	14.26
Tupelo	900,000	14.00	12,600	.....	.....	900,000	14.00
Yellow poplar	255,000	14.22	3,625	155,000	13.06	100,000	16.00
Sweet birch	200,000	16.00	3,200	100,000	16.00	100,000	16.00
White elm	200,000	26.50	5,300	50,000	7.00	150,000	33.00
Sycamore	100,000	11.50	1,150	75,000	10.66	25,000	14.00
Beech	50,000	7.00	350	50,000	7.00	.....	.....
Sugar maple	10,000	10.00	100	10,000	10.00	.....	.....
Total	7,136,000	$13.77	$98,235	3,425,000	$12.76	3,711,000	$14.69

Red gum heads the list of Maryland basket woods in both quantity and value; in amount, 40 per cent, and in value, 42. Eighty per cent of the total was cut in Maryland, and the state-grown wood was $1.27 per thousand cheaper than the imported. Of the 600,000 feet shipped in, the chief part came from Virginia and North Carolina. The average price paid for red gum was $14.30, while in 1908 the average for the run of mills in the United States was $13.08. Though this wood is cut in commercial quantities in twenty-two States, its average price varies less than that of most lumbers, the difference between the highest, in Indiana, and the lowest, in North Carolina, being only $3.84. It is more used for veneers than any other American wood, and basket makers are among the largest users of the veneers.

Digitized by Google

Loblolly pine was second in quantity used and also second in total cost of Maryland basket woods. Twenty-nine per cent was cut in Maryland, and the importations came chiefly from Virginia. The 900,000 feet of tupelo reported was used principally for heavy baskets, and the smaller quantity of yellow poplar was employed in a similar way. The price of the yellow poplar indicates that it was not generally of a class suitable for the lumber market, and was probably cut from young trees. Maryland supplied 61 per cent of all the yellow poplar. Basket makers used 62 per cent of all the sycamore reported for Maryland, and of this amount, the State supplied three-fourths, at $10.66 per thousand, while the average price for sycamore in the United States in 1908 was $14.65.

SHIPS AND BOATS.

The building of ships and boats is an important industry in Maryland. The Chesapeake Bay and its tributaries afford a system of natural highways unsurpassed in the United States. The State contains an area of 2,350 miles of water, much of it navigable for the largest types of vessels, and nearly all for small craft. The number of pleasure boats upon this system of waterways is very large, but the fleets that are engaged in business are much larger. The fisheries of Maryland exceed in value those of every other Middle Atlantic State, and there are 40,000 fishermen in the State, besides many from Virginia, who are engaged in business upon Chesapeake Bay, which is the largest natural oyster-producing water in the world. Though its actual beds cover only 200 square miles, their yield of oysters annually is worth $3,000,000, or more than $23 an acre. Few wheat fields surpass that return in yearly crops. The annual catch of fish is worth $600,000. The shores of the bays and inlets of Chesapeake Bay are literally studded with communities dependent to a greater or less extent upon the fisheries. The oyster fleet of Maryland is a sort of naval police force that keeps a perpetual lookout for infringements of laws relating to State oyster fisheries.

Two and a quarter per cent of all the woods manufactured in Maryland in 1909 was bought by boat makers at an average price of $34.69 per thousand. The State supplied 26 per cent of it at an average cost of $31.02 per thousand, and 74 per cent was bought elsewhere at an average cost of $35.97. Eleven of the twenty-four woods on the

Digitized by Google

list came entirely from without the State, and four others, locust, hickory, pitch pine, and cherry, were supplied wholly by Maryland. Two were foreign woods, teak and mahogany, and they were the highest in price. The average cost of the boat lumber was exceeded by that used by four industries, tanks and silos, wagons, office fixtures, and musical instruments.

In amount and cost the list was headed by longleaf pine, which made 47 per cent of the total and 46 per cent of the value. The cost of longleaf pine by the run of the mill was $12.05 in 1908 in Louisiana, which was the chief producing State. The boat builders of Maryland used a grade better than the run of the mill, which accounts for their paying nearly three times the Louisiana and Georgia prices. Nearly 11 per cent of the longleaf pine imported by all the Maryland manufacturers was for boats. Interior finish was the only industry which used a larger amount.

Next after longleaf pine was white oak with 26 per cent in quantity and 24 per cent in cost. Maryland supplied 81 per cent of it, and only 19 per cent was imported. The home-grown product was a little higher in price than the imported. White oak is the chief frame material of wooden vessels and is used where great strength and stiffness are required, while pine and other light woods make the sides, decks, and lining. Much oak is used for keels because it wears well and is capable of resisting severe shocks.

Cypress is a favorite finishing material for boats. Cabins are frequently built of it, and it is seen in railing and panels. The average price of cypress in 1908 for the whole country was $21.30, and the Maryland boat builders paid $37, but the grade they used was better than the run of the mills.

Douglas fir, of which 262,000 feet were bought by the boat builders of the State, is a Pacific coast wood, the shipments coming chiefly from Washington. It is a favorite wood for spars and masts, because it may be had in practically any size desired. It gives excellent service as siding for canal boats, and much of the Douglas fir brought to Maryland in 1909 was put to that use. It is often listed as Oregon pine, which name was formerly most generally applied to it. This far-western lumber is now found in practically all markets, and its annual cut is exceeded only by the combined cut of the yellow pines. Its average price at the mills is low, $11.97 in 1908, and even when the

Digitized by Google

freight incident to the transcontinental haul has been added, the boat builders in Maryland consider it economical and satisfactory for the purpose to which it is particularly adapted.

All the chestnut oak reported by the Maryland manufacturers was used for canal-boat frames. It is stronger than white oak, though not so stiff. Seventy-five per cent was supplied by Maryland at $20 per thousand, and that brought from without cost the same.

TABLE 8.—*Ships and Boats.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Longleaf pine	3,037,000	$34.14	$103,695	.....	.....	3,037,000	$34.14
White oak	1,629,500	32.05	52,225	1,317,500	$32.39	312,000	30.61
Loblolly pine	388,000	28.49	11,055	29,000	26.03	359,000	28.69
Cypress	286,000	37.03	10,590	.....	.....	286,000	37.03
Douglas fir	262,000	52.82	13,840	.....	.....	262,000	52.82
Chestnut oak	220,000	20.00	4,400	165,000	20.00	55,000	20.00
Ash	209,000	35.72	7,465	4,000	28.75	205,000	35.85
Tupelo	103,000	30.00	3,090	100,000	30.00	3,000	30.00
White cedar	47,000	47.00	2,210	1,000	75.00	46,000	46.41
White pine	38,500	48.36	1,862	500	44.00	38,000	48.47
Red cedar	25,000	45.00	1,125	.....	.....	25,000	45.00
Mahogany	22,000	150.00	3,300	.....	.....	22,000	150.00
Chestnut	20,000	18.00	360	13,000	18.46	7,000	17.14
Spruce	17,000	49.41	840	.....	.....	17,000	49.41
Red oak	11,000	33.18	365	.....	.....	11,000	33.18
Teak	10,200	249.00	2,540	.....	.....	10,200	249.00
Locust	6,000	50.00	300	6,000	50.00	.....	.....
Hickory	5,000	64.00	320	5,000	64.00	.....	.....
Pitch pine	5,000	35.00	175	5,000	35.00	.....	.....
Hackmatack	5,000	50.00	250	.....	.....	5,000	50.00
Yellow poplar	2,500	70.00	175	600	83.33	1,900	65.79
Cherry	2,000	60.00	120	2,000	60.00	.....	.....
Total	6,350,700	$34.69	$220,302	1,648,600	$31.02	4,702,100	$35.97

The ash reported by boat builders was manufactured into frames for small craft, and into tillers and oars. Less than 2 per cent of it grew in Maryland.

White cedar's lightness and strength fit it for canoes and small boats, and the Maryland manufacturers drew their main supply from New Jersey and Virginia. A small quantity was reported from Maryland at $75 for the 1,000 feet bought. The red cedar reported was used for trim for yachts and launches, and that was the use to which the mahogany and the red oak were put. Teak, which is a foreign wood, and the highest priced bought for boats, was employed as decking. None of this wood was used by any other industry in the State. The amount of locust reported was small in comparison with

Digitized by Google

the use of other woods. All that was bought was made into treenails or wooden pins by which ship timbers are fastened together. Much more locust was formerly used for this purpose than at present, iron bolts, spikes, and nails now largely taking its place. Boat builders paid $20 per thousand more for their locust than was paid by vehicle manufacturers who used five times as much of it. The small quantity of hackmatack reported was bought in Maine, and its chief use was as knees for medium-sized vessels, while the cherry, yellow poplar, white pine, and tupelo were for finish and joiner work.

HORSE VEHICLES.

Maryland supplied all the black gum, locust, and pitch pine demanded by the manufacturers of horse vehicles in the State, while of four of the other woods no portion was state-grown. These four were sugar maple, cypress, longleaf pine, and loblolly pine. Two of these, maple and loblolly pine, grow in commercial quantities in Maryland. Sixteen woods in all were reported, ranging from white ash, the largest in quantity, to basswood, the smallest, and from white elm, the cheapest, to basswood, the highest in average price. The quantity of the latter was very small, and its exceptionally high price was probably due to the fact that it was selected for some special purpose and was of extra quality.

The three woods heading the list, white oak, hickory, and white elm, entered chiefly into frames, wheels, and poles and shafts of vehicles, while the yellow poplar, white pine, cypress, and the longleaf and loblolly pines were made into bodies and tops of farm wagons, business wagons, mail wagons, and buggies and carriages. The most of the yellow poplar was used for panels in buggies and carriages, and for buggy seats. It is one of the best available woods where fine finish and painting are demanded. Some of the finest decorative painting on carriage bodies is upon yellow poplar. It is as smooth as metal, and some prefer it because it is less liable than sheet metal to be injured by dints. In some instances aluminum is substituted for it.

Practically all the black gum reported was made into hubs. Its interlaced grain renders the wood very difficult to split. Hickory, elm, and locust were also manufactured into hubs, the latter chiefly

Digitized by Google

for buggies. Many hubs, particularly the larger sizes, were made of white oak. The chief properties of wood intended for hubs are strength to resist steady strain and sudden shocks, and sufficient hardness to withstand the tendency of the spokes to wear and enlarge the mortises in which they fit. The only pin oak reported by the industries of Maryland was the small quantity that went into vehicles. It was used for felloes. Half of it was cut in Maryland and half in West Virginia. All of the pitch pine reported by this industry was used for bottoms of wagon beds.

TABLE 9.—*Horse Vehicles.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
White oak	743,300	$37.13	$27,601	452,050	$22.64	291,250	$59.68
Hickory	552,000	42.12	24,907	269,500	58.75	282,500	32.12
White elm	385,000	17.38	6,690	250,000	10.56	135,000	30.00
Yellow poplar	86,500	68.25	5,904	7,000	69.21	79,500	55.47
Ash	41,500	51.33	2,130	19,500	34.82	22,000	65.91
Black gum	35,000	30.00	1,050	35,000	30.00	.....	.....
Locust	30,000	30.00	900	30,000	30.00	.....	.....
White pine	17,000	41.17	700	2,000	50.00	15,000	40.00
Sugar maple	15,000	20.00	300	.....	.....	15,000	20.00
Loblolly pine	13,500	38.29	517	.....	.....	13,500	38.29
Red oak	11,000	22.27	245	10,000	21.50	1,000	30.00
Cypress	9,500	58.94	560	.....	.....	9,500	58.94
Longleaf pine	7,000	36.59	256	.....	.....	7,000	36.59
Pitch pine	6,000	33.33	200	6,000	33.33	.....	.....
Pin oak	2,000	30.00	60	1,000	30.00	1,000	30.00
Basswood	2,000	80.00	160	1,000	80.00	1,000	80.00
Total	1,956,300	$36.89	$72,180	1,083,050	$29.96	873,250	$59.95

The three woods, white oak, hickory, and white elm, made up 85 per cent in amount and 80 per cent in cost of the total vehicle woods reported in the State; and of the three woods, white oak was 38 per cent in quantity and the same per cent in cost; hickory was 27 per cent in quantity and 33 per cent in cost; and white elm was 20 per cent in quantity and 9 per cent in cost. The average reported cost of hickory for the United States in 1908 was $29.66, for the run of the mill. The Maryland vehicle makers paid $12.46 more for theirs. About one-half was procured in the State, and this was much higher in price than that bought outside, the cost of the former being $58.75, and the latter $32.12. The outside hickory came from Ohio, West Virginia, Pennsylvania, Virginia, and a small quantity was reported from Florida. Hickory is pre-eminently a vehicle and handle wood,

Digitized by Google

but in Maryland practically the entire amount reported was used in the manufacture of vehicles. The total for the State, for all purposes, was 557,000 feet, and all but 5,000 feet went into vehicles, and the 5,000 feet went into handles. The vehicle parts reported made of this wood were axles, shafts, poles, carriage frames, singletrees, spokes, and wheel rims.

The horse-vehicle industry in Maryland is made up of a few manufacturers of considerable size, and many that work on a small scale, but are scattered all over the State. The majority of blacksmith shops do more or less work on vehicles, either in making or repairing. It was not practicable, however, in compiling this report, to collect and include all statistics from blacksmith shops in cities, towns, and in rural communities. For that reason, the total figures shown should be understood to include only shops and factories where vehicle-making, and not blacksmithing, is the chief business carried on.

TANKS AND SILOS.

The builders of tanks and silos reported the use of only six kinds of wood, all of which were high-priced and not one foot of which grew in Maryland. Less than 1 per cent of the wood purchased by the manufacturers of the State was for this industry, but it constituted more than 2 per cent of the total cost. Only one industry, musical instruments, paid a higher average price for its lumber.

Cypress leads the list in amount, but is closely followed by white pine. The properties which fit cypress for its wide use as a tank and vat material are its freedom from chemicals by which contents of vessels might be injured, and the absence of knots and defects in much of the lumber. To this may be added its handsome appearance. Cypress tanks are built to contain acids, beer, cider, dyes, kraut, oil, pickles, starch, vinegar, water, wine, and whisky. Water tanks include those for swimming, thrashing machines, sprinkling wagons, windmill towers, and railway water stations. Forty-seven per cent of all the lumber bought for this industry in 1909 was cypress, and it made up 50 per cent of the cost of all. The average price was $51.83, which was more than $30 higher than the average run-of-mill price of this wood for the whole country. Tank and silo builders used 6 per cent of all the cypress reported by the manufacturers in the State and paid 12 per cent of the cost of all.

Digitized by Google

The white pine bought for this industry cost $8.73 per thousand less than cypress and was used for the same purposes. In a number of industries, white pine has lost chief place because of its high price, but in this instance a more costly wood has gone ahead of it in quantity. The price paid by tank builders for white pine was more than twice the average run-of-mill cost for the whole country.

The use of white cedar was about one-fifth that of white pine and its cost per thousand was $3.10 less. It is usually regarded the equal of any wood for tanks, provided clear lumber can be had, but it is much more difficult to procure clear cedar of large dimensions than cypress and white pine, and for that reason it serves chiefly in tanks of smaller sizes. The same observation applies to red cedar, of which only a small quantity was used by Maryland tank builders, and it was next to the highest in price of all they used. The lowest in price was longleaf pine.

TABLE 10.—*Tanks and Silos.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Cypress	1,178,000	$51.83	$61,055	.....	.....	1,178,000	$51.83
White pine	1,050,000	43.10	45,250	.....	.....	1,050,000	43.10
White cedar	200,000	40.00	8,000	.....	.....	200,000	40.00
White oak	50,000	110.00	5,500	.....	.....	50,000	110.00
Longleaf pine	50,000	35.00	1,750	.....	.....	50,000	35.00
Red cedar	11,000	60.00	660	.....	.....	11,000	60.00
Total	2,539,000	$48.13	$122,215	.....	.....	2,539,000	$48.13

The white oak demanded by this industry was of the highest class and cost more per thousand than the white oak used by any other industry. The average price paid for the 50,000 feet used exceeded the price paid for any other wood grown in the United States and reported by Maryland manufacturers, except for a single 1,000 feet of black walnut listed by the makers of office fixtures. The next below the white oak was holly at $102.

CIGAR BOXES.

Six woods were made into cigar boxes in Maryland, but the industry used less than 1 per cent of the total amount of lumber manufactured in the State. Two of the species reported are veneer woods, and the

Digitized by Google

four others are chiefly cut into thin stock upon which the veneer is glued. Spanish cedar, imported principally from Mexico, is the largest in quantity and in total cost, though two others cost more per thousand—red cedar and tupelo. Thirty-seven per cent of all the cigar-box lumber is Spanish cedar. The largest use of inside wood, as backing for the veneer, was of yellow poplar at an average cost of $25.15 per thousand. Basswood was next, then tupelo, while red gum, with a total of 100,000 feet, was least. The highest-priced wood was tupelo at $42.46 per thousand, which was a higher price than any other industry reported for the wood except furniture. The amount used was nearly 8 per cent of the total for the industry. The red cedar was cut into veneer. It grew in Virginia. No part of the cigar-box wood was of Maryland growth, though four of the six species are found in commercial quantities growing in the State.

TABLE 11.—*Cigar Boxes.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Spanish cedar	871,000	$29.88	$26,030	.....	.....	871,000	$29.88
Yellow poplar	680,000	25.15	17,120	.....	.....	680,000	25.15
Basswood	520,000	19.77	10,280	.....	.....	520,000	19.77
Tupelo	183,000	42.46	7,770	.....	.....	183,000	42.46
Red gum	100,000	18.00	1,800	.....	.....	100,000	18.00
Red cedar	20,000	30.00	600	.....	.....	20,000	30.00
Total	2,374,000	$29.87	$63,690	.....	.....	2,374,000	$29.87

BRUSHES.

Only two woods figured in the brush-making industry in Maryland, beech and chestnut, and none of the former was cut in the State, but 95 per cent of the chestnut was grown in Maryland. Seventy-two per cent of all the beech reported by the wood-using industries of the State was made into brushes. The value of this wood in 1908, averaged for the whole country for the run of the mills, was $13.50 per thousand. The Maryland brush makers paid $5 advance on that value. The chestnut bought in the State was low in price, $7.50 per thousand, which was based on logs delivered at the mills and not on sawed lumber. The chestnut brought from other States was $20 a thousand, which was $5.61 more than the run-of-mill value of Maryland chest-

Digitized by Google

nut in 1908, and $3.73 more than its run-of-mill value averaged for the whole country. When beech becomes thoroughly seasoned, it absorbs water very slowly, and this greatly increases its value for the backs of brushes that are used in damp places, such as scrub brushes. These are sometimes made wholly of wood, the backs of beech, and the bristles of palm leaf or some other wood fiber. Among other brushes of which beech is often the back or body are those for whitewashing, paperhanging, and painting. Many kinds are not supposed to encounter dampness, among such being clothes and hat brushes, floor sweepers, blacking brushes, and brushes for currying horses.

TABLE 12.—*Brushes.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Beech	1,200,000	$18.50	$22,200	.....	....	1,200,000	$18.50
Chestnut	630,000	8.10	5,100	600,000	$7.50	30,000	20.00
Total	1,830,000	$14.92	$27,300	600,000	$7.50	1,230,000	$18.54

STORE AND OFFICE FIXTURES.

The making of store and office fixtures is closely related to interior finish on the one hand and furniture on the other. The exact lines of separation are not always easy to determine. In the present instance the reports of manufacturers were accepted as given, and what they listed under the name of fixtures for office and stores were placed in that industry, though perhaps in some cases the commodities could with reason have been placed with furniture or with interior finish. Generally, however, fixtures in this class are show cases, counters, drug or sample cabinets, shelving, and certain kinds of seats and benches, and other articles for special uses, or made to order.

Only two industries in Maryland paid higher average prices for lumber than was paid by the makers of fixtures. Tank builders and makers of musical instruments paid more per thousand. The quantity of wood demanded for office and store fixtures was small in comparison with some of the other industries, but a very high grade was demanded for most of the kinds used. The highest-priced black walnut reported in the State was listed under this industry, but the quantity

Digitized by Google

was small. The sweet birch and sycamore here listed were also higher in price than under any other industry.

Yellow poplar constituted 26 per cent of all the lumber used, chestnut and white oak 24 per cent each. The amount of mahogany was comparatively large, and in total cost it was third, while yellow poplar was second, and white oak was first. The poplar was comparatively low in price, and much of it was used as interior work, shelving, drawers, etc., and not as the visible outside. The average run-of-mill value of yellow poplar for the whole country in 1908 was $25.30, while the fixture makers in Maryland paid only $1.72 more for theirs delivered at the factory.

Seventy-two per cent of all the cherry reported in the State was bought for this industry, and the price paid was more than double the average run-of-mill value for the whole country.

Of the eleven kinds of wood used by the fixture manufacturers of Maryland, ten grow in commercial quantities in the State, and yet not one foot was supplied by the State to the manufacturers.

TABLE 13.—*Store and Office Fixtures.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Yellow poplar	445,000	$27.02	$12,025	.....	.....	445,000	$27.02
Chestnut	400,000	22.81	9,125	.....	.....	400,000	22.81
White oak	400,000	46.62	18,650	.....	.....	400,000	46.62
Cherry	151,000	66.38	10,025	.....	.....	151,000	66.38
Mahogany	101,000	108.41	10,950	.....	.....	101,000	108.41
Sweet birch	100,000	40.00	4,000	.....	.....	100,000	40.00
Ash	44,000	28.64	1,260	.....	.....	44,000	28.64
Sycamore	10,000	45.00	450	.....	.....	10,000	45.00
White pine	5,000	65.00	325	.....	.....	5,000	65.00
Black walnut	1,000	150.00	150	.....	.....	1,000	150.00
Sugar maple	1,000	30.00	30	.....	.....	1,000	30.00
Total	1,658,000	$40.40	$66,990	.....	.....	1,658,000	$40.40

MUSICAL INSTRUMENTS.

The musical-instrument makers of Maryland pay a higher average price for the wood they use than is paid by any other class of manufacturers of wood in the State. More kinds of foreign woods are used in this industry than in any other, and they include the highest-priced woods reported in the State. The highest-priced are in very small quantities, but their uses are special and they are entitled to

Digitized by Google

places on the list. If they had been demanded in larger quantities perhaps the prices would have been much lower. Ebony at $500 per thousand feet headed the list for cost, but Circassian walnut, boxwood, and tulipwood were expensive. The Circassian walnut came from Russia, the ebony from Ceylon, the boxwood from Turkey, and the tulipwood from Australia, while a number of foreign countries supply mahogany, the largest amounts coming from Africa and from Central America. A little mahogany grows in Florida, and one manufacturer reported a shipment from that State, but it was not ascertained whether it grew there or was reshipped from some Florida port. Twenty-two per cent of all the mahogany reported for Maryland was made into musical instruments.

TABLE 14.—*Musical Instruments.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Spruce	363,500	$33.98	$12,353	.....	.....	363,500	$33.98
Ash	324,000	47.95	15,535	23,000	$35.00	301,000	48.93
Yellow poplar	226,000	47.81	10,804	.....	.....	226,000	47.81
Sugar maple	217,000	29.83	6,474	.....	.....	217,000	29.83
White pine	151,000	75.63	11,420	.....	.....	151,000	75.63
Mahogany	106,500	148.68	15,835	.....	.....	106,500	148.68
Basswood	67,050	25.53	1,702	.....	.....	67,050	25.53
White oak	52,000	50.38	2,624	.....	.....	52,000	50.38
Cypress	20,000	48.00	960	.....	.....	20,000	48.00
Black walnut	16,300	42.94	700	7,000	35.00	9,300	48.92
Cherry	14,000	34.71	486	4,500	32.00	9,500	36.00
Circassian walnut	1,500	250.00	375	.....	.....	1,500	250.00
Holly	350	102.86	36	.....	.....	350	102.86
Ebony	100	500.00	50	.....	.....	100	500.00
Boxwood	25	200.00	5	.....	.....	25	200.00
Tulip wood	25	200.00	5	.....	.....	25	200.00
Total	1,559,350	$50.90	$79,364	34,500	$34.61	1,524,850	$51.26

More spruce was reported than any other wood, and its range of uses was wide, some being made into boxes for shipping the instruments, while some was put to the exacting and special use of sounding boards. The largest part of all the woods reported was made into pianos and organs, but many other instruments are on the list of manufacturers—violins, banjos, drums, harps, tambourines, dulcimers, guitars, and others. Some require small parts of wood, while others are nearly wholly of that material. All of the holly, ebony, boxwood, and tulipwood reported for the State went into musical instruments. Sixteen woods in all were listed, and only three were in any part supplied

Digitized by Google

by the forests of the State, and they only to a small extent. They were ash, black walnut, and cherry.

Frames and interior parts of instruments demanded chiefly spruce, ash, maple, white pine, basswood, and cypress, while outside woods were mahogany, black walnut, cherry, and Circassian walnut. Special uses, such as keys, and parts of actions, and other mechanisms, were made of ebony, holly, boxwood, tulipwood, white pine, and maple. Piano keys are sometimes made of select basswood, fine panels of yellow poplar, and cypress.

MISCELLANEOUS.

Nearly 15,000,000 feet of lumber, or about 5 per cent of the total quantity reported by the manufacturers of the State in 1909, are represented in Table 15. Twenty-four woods are listed, two of them foreign, rosewood, and lignum-vitae, which occur nowhere else in this report. The latter is a product of the West Indies, and the shipments reported for Maryland were used for bowling balls and bearings for gudgeons. The rosewood, which comes from South America, was manufactured into gavels, small handles, and police clubs.

Twenty-six per cent of the lumber reported under the head of miscellaneous manufactures was basswood, and it made up 71 per cent of all the basswood manufactured in Maryland. It is the most important material in the State for the woodenware makers, and is largely used for ironing boards, bread boards, chopping bowls, trays, cloth boards, mirror frames, spice drawers, tea chests, sample cases, trunks, humidors, and a great number of other commodities. It imparts little or no stain or taste to articles of food brought in contact with it, and for that reason it has many uses where most other woods are not satisfactory. Cottonwood has been substituted for it in Maryland to a small extent, shipments for that purpose coming from Louisiana or other Southern States. Twenty-three per cent of the cottonwood reported for Maryland was in the miscellaneous list, and the chief part of it was substituted for basswood. Its average cost per thousand was $6.57 less than basswood.

Loblolly pine is next after basswood the highest in quantity under miscellaneous uses. Its amount is not large, however, compared with the total loblolly pine used in the State—about 7 per cent. The principal uses for that listed in the table were for picture and mirror

Digitized by Google

frames, and for scroll work. The longleaf pine listed with it was put to practically the same uses.

More than 1,500,000 feet of white oak, or 10 per cent of all the wood in Table 15, was reported under miscellaneous uses. It was manufactured into cold-storage doors, ice boxes, insulator brackets, hoops, ice chutes, and car frames.

TABLE 15.—*Miscellaneous.*

Species.	Quantity used annually. (Feet B. M.)	Average cost at factory per M (f. o. b.)	Total cost at factory (f. o. b.)	Grown in Maryland.		Grown outside Maryland.	
				Feet.	Average cost per M (f. o. b.)	Feet.	Average cost per M (f. o. b.)
Basswood	3,900,000	$29.59	$115,420	.....	.....	3,900,000	$29.59
Loblolly pine	3,012,000	20.22	60,898	202,000	$15.04	2,810,000	20.53
White oak	1,533,000	29.02	44,500	87,500	31.43	1,445,500	28.86
Longleaf pine	1,430,000	29.06	41,550	.....	.....	1,430,000	29.06
Yellow poplar	1,058,000	25.78	27,275	.....	.....	1,058,000	25.78
Hemlock	1,000,000	28.00	28,000	.....	.....	1,000,000	28.00
Locust	900,000	16.66	15,000	900,000	16.66	.....	.....
Chestnut	480,000	29.37	14,130	1,250	18.00	478,750	29.47
Tupelo	300,000	20.00	6,000	.....	.....	300,000	20.00
Cottonwood	240,000	23.00	5,520	.....	.....	240,000	23.00
Red oak	175,000	35.71	6,250	37,000	50.29	138,000	31.81
Cypress	170,000	40.29	6,850	.....	.....	170,000	40.29
Spruce	150,000	38.50	5,775	.....	.....	150,000	38.50
White pine	150,000	46.80	7,020	.....	.....	150,000	46.80
Ash	100,000	32.50	3,250	.....	.....	100,000	32.50
Sweet birch	83,000	33.55	2,785	.....	.....	83,000	33.55
Beech	70,000	21.43	1,500	.....	.....	70,000	21.43
Sugar maple	50,000	25.00	1,250	.....	.....	50,000	25.00
Black gum	50,000	28.00	1,400	25,000	28.00	25,000	28.00
Dogwood	16,000	24.37	390	16,000	24.37	.....	.....
Lignum-vitae	7,070	466.76	3,300	.....	.....	7,070	466.76
White birch	2,000	45.00	90	.....	.....	2,000	45.00
Rosewood	600	366.66	220	.....	.....	600	366.66
Black walnut	200	100.00	20	.....	.....	200	100.00
Total	14,876,870	$26.78	$398,393	1,268,750	$18.73	13,608,120	$27.53

Yellow poplar was the only wood listed in Maryland for automobiles, and the quantity used for that purpose was small. Among other miscellaneous uses to which it was put was in making photograph albums, spice drawers, whiskbroom holders, wooden pumps, and scroll-work.

The locust placed in this list was manufactured into chucks, insulator pins, and brackets. Nearly the whole amount was made into insulator pins for telephone and telegraph lines.

Chestnut to the amount of nearly 500,000 feet was used in the manufacture of coffins, frames for pictures and mirrors, cold-storage doors, ice chests, and refrigerators.

The tupelo listed in Table 15 was made into large sheets of veneer

Digitized by Google

and was used to wrap picture-frame stock, molding, and scrollwork for shipment.

The red oak in the table was manufactured into picture and mirror frames, usually of a larger size than those made of pine.

Ash was manufactured into dowels for bending in reedwork. It was also made into brackets, picture frames, and woodenware.

Beech and black gum were manufactured into mine rollers, dogwood into mauls and spindles, and white birch into dowels, and mirror and picture frames.

Maryland met the demand for two of the woods in Table 15, locust and dogwood, and five others in part, loblolly pine, white oak, chestnut, red oak, and black gum. Nine others grow in the State, but the demand for them was met by importations. Ninety-one per cent of all the wood used came from the outside.

AMOUNTS BY COUNTIES.

Table 16, which follows, is a partial recapitulation intended to show the quantity and cost of wood manufactured in those counties of the State where the amount exceeded 500,000 feet. Fifteen counties are in the list, and eight are omitted because they fell below the 500,000 mark. It is seen that Baltimore City and County exceed in quantity and cost of material all the other counties combined.

TABLE 16.—*Counties that Manufactured More than 500,000 feet, and the Total Cost of Lumber.*

Counties.	Quantity of wood manufactured.	Cost at factory.
Baltimore and Baltimore City	159,020,870	$3,323,840
Wicomico	26,888,000	396,425
Washington	25,294,000	801,371
Harford	12,069,500	163,665
Somerset	10,343,000	160,755
Caroline	8,819,000	114,090
Anne Arundel	7,695,000	116,595
Dorchester	7,389,000	107,770
Worcester	6,017,000	135,603
Frederick	5,285,000	145,765
Allegany	3,205,500	91,984
Talbot	1,860,000	44,200
Cecil	1,796,000	63,300
Montgomery	1,280,500	17,190
St. Mary's	925,000	21,475

Digitized by Google

LESSENING THE WASTE.

Many of the Maryland manufacturers of wood report a tendency to lessen waste in shops and factories by finding uses for small pieces which formerly were thrown away. Such pieces are worked into salable commodities, and much that can not be reworked at a profit is put on the market as kindling wood and finds sale at fair prices. A few of the methods of utilizing waste are mentioned below. They have been gleaned from reports of manufacturers in all lines of wood working.

Some furniture makers glue together small, clear pieces, down to an inch wide and a foot long, and find that they serve very well for the interior frame work of bureaus, chiffoniers, sideboards, and similar articles.

Wheelwrights save the ends cut from spokes and shape them in lathes for chisel, gimlet, auger, and other small-tool handles. Wagon builders occasionally make use of scraps of hardwood for lining brake blocks. Sash and blind makers save their scraps for the match factories, or if pieces are large enough, they are worked into corner blocks, rose blocks, and balusters. Coopers recut broken or defective staves of the larger sizes and make kegs or smaller vessels of them. Small headings are economically manufactured in that way. Occasionally defective staves and headings are made into dowels. Basket makers save the cores from which veneer has been cut, and saw them into thin slats for baskets and crate covers. Brush manufacturers have made some headway in using waste from furniture factories, but the pieces are of so many sizes and of such irregular shapes that success has been only partial. A small porch-chair shop has been able to draw a considerable part of its raw material from the waste of boat factories.

Some of the makers of interior finish work their odds and ends of softwoods into small boxes, and the hardwood scraps are made into parquet flooring. Planing mills work scraps and broken pieces, unsalable in that form, into boxes for apples, medicines, and other articles, and into brackets, balusters, roseblocks, and small quarter-round molding.

Digitized by Google

FORMS IN WHICH WOOD REACHES FACTORIES.

The wood-using industries of Maryland manufacture nearly 300,000,000 feet of lumber a year, and the raw material reaches the factories in nearly all sizes and grades known to the sawmill business. It is seldom practicable for all the factories and shops which make the same kind of wares to specify certain sizes and grades of material desired, and take nothing else. There are, however, limits to the varieties which they can make use of, because their business demands that the lumber purchased must meet certain requirements, and if it does not meet them, it can not be profitably used, though it might suit some other industry very well.

In collecting the statistics which have been compiled and condensed in Tables 3 to 15, both inclusive, the Maryland manufacturers of wood were asked to state the forms and grades in which the raw material was desired at their factories, and also the smallest sizes that could be profitably used. A summary of replies received shows that there is little agreement among them on these points, even among those who make the same class of commodities. For example, what one box maker demands, another can not use. It depends upon the kind of boxes each is making, and unless the fact is stated each time a certain size or grade of lumber is specified, the information can be of no value to others. Six smallest sizes that could be used were listed in the replies of the box makers, and no two of them were the same. It is evident that a maker of confectionery boxes could find places for sizes of lumber that would have no place in the factory of a piano-box maker. Six box makers reported that they bought the log run of lumber, while eighteen bought certain specified grades. The smallest sizes that could be employed by makers of interior finish were almost as numerous as the firms reporting. This record was greatly exceeded by boat builders, for nineteen sizes were listed, every one of which was the limit for some one of the manufacturers. The grades listed were not so numerous, but seventeen boat makers bought rough lumber, five bought dressed, while eleven bought first grade, four bought second, and twelve bought all. The makers of horse vehicles showed no uniformity in size, grade, or kind, some purchasing logs, some rough lumber, some both kinds, while in sizes almost everything known to the lumber trade was reported. The requirements of the makers of different kinds of

Digitized by Google

vehicles differ greatly. The manufacturer of stone wagons and dirt carts finds little use for the thin, yellow-poplar panels and the elastic hickory spokes which exactly meet the requirements of the makers of high-grade buggies, and yet both are vehicle manufacturers.

It may, therefore, be summed up that no industry, including all the firms engaged in it, calls for particular grades and sizes of lumber, but that every manufacturer, whether he makes boats, boxes, finish, furniture, or something else, selects the material most suitable and economical in his particular line, and the selections made by him are no guide to what other manufacturers will demand.

REPORTED SOURCES OF WOODS.

The Maryland manufacturers drew the supplies of lumber from thirty-four States and thirteen foreign countries. Twenty States furnished white oak. Of the fifty-four species of wood reported twenty-six came in part from Maryland. The largest contributors in the number of species outside of Maryland were: Virginia twenty-four, West Virginia twenty, and Pennsylvania fifteen. The States from which Maryland drew supplies were, Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Oklahoma, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, Washington, Wisconsin, and West Virginia. The foreign lands were Africa, Australia, Brazil, Canada, Ceylon, Cuba, France, Honduras, India, Mexico, Russia, Turkey, and West Indies.

The particular States and foreign countries from which the woods were received are shown below:

Ash—Connecticut, Maine, Maryland, Massachusetts, Michigan, Mississippi, New Hampshire, North Carolina, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia.

Balsam fir—Pennsylvania.

Basswood—Kentucky, Maryland, Tennessee, Wisconsin, Virginia, West Virginia.

Beech—Maryland, Pennsylvania, Tennessee, Virginia, West Virginia.

Digitized by Google

Black gum—Maryland, North Carolina, Virginia.
Black walnut—Maryland, Missouri, Pennsylvania, West Virginia.
Boxwood—Turkey.
Butternut—Maryland.
Cherry—Maryland, Pennsylvania, Virginia, West Virginia.
Chestnut—Maryland, New York, North Carolina, Pennsylvania, Tennessee, Virginia, West Virginia.
Chestnut oak—Maryland, Pennsylvania.
Circassian walnut—Russia.
Cottonwood—Louisiana, Maryland, Virginia.
Cucumber—Maryland, West Virginia.
Cypress—Alabama, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Tennessee, Virginia.
Dogwood—Maryland.
Douglas fir—Oregon, Washington.
Ebony—Ceylon.
French walnut—France.
Hackmatack—Maine.
Hemlock—Maryland, North Carolina, Pennsylvania, Virginia, West Virginia.
Hickory—Florida, Maryland, Ohio, Pennsylvania, Virginia, West Virginia.
Holly—North Carolina.
Lignum-vitae—West Indies.
Live oak—North Carolina, Virginia.
Loblolly pine—Maryland, North Carolina, Virginia.
Locust—Delaware, Maryland, Virginia.
Longleaf pine—Alabama, Florida, North Carolina, South Carolina.
Mahogany—Africa, Cuba, Florida (?), Honduras, India, Mexico.
Pin oak—Maryland, West Virginia.
Pitch pine—Maryland, Virginia, West Virginia.
Red cedar—Maryland, North Carolina, South Carolina, Virginia.
Red gum—Arkansas, Maryland, North Carolina, Virginia.
Red mulberry—Maryland.
Red oak—Indiana, Kentucky, Maryland, North Carolina, Pennsylvania, Tennessee, Virginia, West Virginia.
River birch—Maryland.
Rock elm—Michigan.
Rosewood—South America.

Digitized by Google

Spanish cedar—Cuba, Mexico.

Spruce—Maine, Maryland, Pennsylvania, West Virginia.

Sugar maple—Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, Vermont, West Virginia.

Sugar pine—California, Oregon.

Sweet birch—Maryland, Massachusetts, Michigan, New York, North Carolina, Pennsylvania, Virginia, West Virginia.

Sycamore—Maryland, Tennessee, Virginia.

Teak—India.

Tulipwood—Australia.

Tupelo—Alabama, North Carolina.

White birch—Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.

White cedar—Maryland, New York, North Carolina, South Carolina, Virginia.

White elm—Maryland, Michigan, New Jersey, Ohio, Virginia, West Virginia.

White oak—Alabama, Arkansas, Delaware, Indiana, Kentucky, Louisiana, Maryland, Massachusetts, Mississippi, Missouri, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia.

White pine—Canada, Michigan, Minnesota, Pennsylvania, Tennessee, Virginia, West Virginia, Wisconsin.

Yellow buckeye—Tennessee, West Virginia.

Yellow poplar—Indiana, Kentucky, Maryland, Michigan, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, West Virginia.

USES BY SPECIES.

The manufacturers in Maryland reported the use of fifty-four different woods. The principal purposes for which each is employed in the State are shown in the list which follows:

Ash—Antique furniture, balusters, brackets, cabinets, carriage bodies, cart shafts, ceiling, chiffoniers, china closets, cupboards, dowels for bending in reedwork, extension tables, fixtures for stores and offices, flooring, frames for boats, library tables, molding, organs, pianos, stair work, tillers for canal boats, wagon frames, wheels.

Balsam fir—Doors, house-trim, sash.

Digitized by Google

Basswood—Boxes, carriage bodies, cigar boxes, cloth boards, flooring, house finish, humidors, interior finish for cars, interior of furniture, ironing boards, mirror frames, molding, outside car finish, organs, pianos, sample cases, siding, spice drawers, tables, tea chests, trunks, whiskbroom handles.

Beech—Baskets, boxes, brushbacks, china closets, cupboards, extension tables, kitchen cabinets, kitchen ware, library tables, mine rollers.

Black gum—Chucks, hubs, mine rollers.

Black walnut—Brackets, gavels, grilles, interior finish, organs, pianos, store and office fixtures.

Boxwood—Pipe organs.

Buckeye—Candy and chocolate boxes.

Butternut—Ceiling, flooring, siding.

Cherry—Boat finish, china closets, cupboards, extension tables, interior finish, library tables, mantels, organs, pianos, store fixtures.

Chestnut—Barrel hoops, boxes, brush backs, canal-boat hatches, caskets, china closets, church finishing, coffins, cold-storage doors, couch frames, counters, crates, fixtures for stores, furniture, horse vehicles, ice chests, interior finish, library tables, mantels, molding, Morris chairs, picture frames, refrigerators, sash, slack cooperage.

Chestnut oak—Canal-boat frames.

Circassian walnut—Furniture, interior finish, pianos, plumbers' woodwork.

Cottonwood—Boxes, cloth boards, flour barrels, ironing boards.

Cucumber—Car finish, ceiling, floor, siding.

Cypress—Boats, boxes, carriage panels, furniture, interior finish, mantels, organs, porch posts, silos, tanks, wagon bottoms.

Dogwood—Mauls, spindles.

Douglas fir—Boat sides, canal-boat combing, ceiling, masts, race planks for canal boats, spars.

Ebony—Gavels, handles, organs, police clubs.

French walnut—Furniture.

Hackmatack—Boat knees, lighters.

Hemlock—Boxes, house finish.

Hickory—Axles, buggy shafts, carriage frames, carts, handles, singletrees, spokes, wagons, wheel rims.

Holly—Pianos, pipe organs.

Digitized by Google

Lignum-vitae—Bowling balls, bearings for steamboat wheels, gudgeon bearings.

Live oak—Interior finish.

Loblolly pine—Basket bottoms, beer-bottle boxes, boats, cart bodies, crates, flooring, frames for doors and windows, fruit boxes, garden boxes, interior finish, nail keys, oyster boxes, seats for boats, siding, staves, store fixtures, wagon beds, balusters, brackets, chiffoniers, mantels, molding, picture frames, railing, sash, scroll-work, sideboards, siding.

Locust—Brackets, chucks, hubs, insulator pins, treenails.

Longleaf pine—Boat planking, canal-boat cabins, canal-boat hatches, cart beds, door casing, doors, elevators, flooring, interior finish, mantels, tanks, tank stands, trunks, wagon bodies, window frames.

Mahogany—Antique furniture, fixtures for offices and stores, furniture, gavels, grilles, interior finish, joiner work in boats, organs, pianos, police clubs, table legs.

Pin oak—Wagon felloes.

Pitch pine—Boats, cupboards, desk shelves, doors, extension tables, house trim, ice chests, kitchen cabinets, sash, spring-wagon bodies, table frames, wagon bottoms.

Red cedar—Boats, cigar boxes, tanks.

Red gum—Berry baskets, butter dishes, cigar boxes, slack cooperage, trunk crates.

Red mulberry—Boats.

Red oak—Boat finish, bodies for wagons and carriages, church finish, flour barrels, frames for wagons, furniture, house finish, mantels, mirror frames, molding, picture frames, wheel stock.

River birch—Hoops.

Rock elm—Coiled hoops.

Rosewood—Gavels, handles, pianos, police clubs, table legs.

Spanish cedar—Cigar boxes.

Spruce—Cold-storage doors, interior finish, organs, pianos, spars.

Sugar maple—Architectural mantels, baby-buggy seats, barrel hoops, baskets, bed springs, buffets, butter dishes, chairs, chiffoniers, china closets, couch frames, cupboards, duck pins, furniture, hall racks, ice chests, interior finish, kitchen cabinets, office fixtures, organs, pianos, reed-chair seats, rockers, slack cooperage, table sides, tenpins, Turkish chairs, wardrobes.

Digitized by Google

Sugar pine—Blinds, doors, furniture, interior finish, sash.

Sweet birch—Brackets, chairs, china closets, counters, cupboards, extension tables, interior finish, grilles, kitchen cabinets, Morris chairs, parlor suits, picture frames, plumbers' woodwork, sample cases, store fixtures, table legs, trunks.

Sycamore—Baskets, corework.

Teak—Joiners' work in boats.

Tulipwood—Pipe organs.

Tupelo—Barges, basket bottoms, boats, candy boxes, chiffoniers, china closets, cigar boxes, crates, cupboards, extension tables, furniture, kitchen cabinets, packing boxes, picture frames, scows, spice boxes, tea chests, tug tenders, veneer for wrapping molding for shipment.

White birch—Dowels, mirror frames, molding, picture frames.

White cedar—Boats, cigar boxes, deck ceiling, lining for couches, planking, tanks.

White elm—Baskets, chucks, flour barrels, wagon hubs.

White oak—Architectural mantels, axles, balusters, bent rims, boat keels, cabinets, canal-boat bottoms, car floats, cart frames, chiffoniers, church furnishing, closets for china, cold-storage doors and chutes, couch frames, cupboards, dressers, fly screens, frames for boats, frames for bed springs, furniture, guards for boats, hoops, ice boxes, insulator brackets, interior finish, kitchen cabinets, organs, plumbers' woodwork, sideboards, stairwork, staves, store and office fixtures, tanks, Turkish chairs, wagon bottoms, wagon sills, wheels for wagons and carts.

White pine—Beehives, boat bottoms and decks, brackets, bread boxes, caskets, coffee boxes, coffins, doors, fly screens, finish for boats, frames, interior finish, mantels, molding, office fixtures, organs, patterns, pianos, sash, silos, tanks, yeast boxes.

Yellow buckeye—Candy boxes, spice drawers, tea chests.

Yellow poplar—Antique furniture, architectural mantels, automobiles, bakers' wagon bodies and shelves, baskets, boat seats, brackets, buggy bodies and seats, candy boxes, chiffoniers, china closets, cigar boxes, cornice, crates, cravat holders, cupboards, doors and door frames, flour barrels, furniture, hatracks, house siding, humidors, interior finish, mantels, molding, organs, photograph albums, pianos, porch pillars, sash, scrollwork, sideboards, spice

Digitized by Google

drawers, store and office fixtures, table tops, tea boxes, trunks, wagon beds, whisk-broom holders, window frames, wooden pumps.

WOOD MANUFACTURERS.

Below is a list of Maryland manufacturers who supplied data on which this report is based. The names are grouped by industries, and if a name appears under more than one industry it indicates that the firm manufactured more than one commodity.

BASKETS.

Maryland Veneer & Basket Co....Baltimore
Cambridge Manufacturing Co....Cambridge
Eden Manufacturing Co.....Eden
Nanticoke Manufacturing Co....Federalsburg
G. A. Bounds .....Hebron
E. W. Goodwin.....Marion
Petey Manufacturing Co.....Pittsville
Powelsville Manufacturing Co...Powelsville
Phillips & Douglas.....Preston
Prince Anne Milling Co.....Princess Anne
Somerset Lumber Co.....Princess Anne
S. E. W. Freil.....Queenstown
Thomas L. D. Swing & Co.....Ridgeley
Huston Sons Co.....Salisbury
D. J. Elliott.....Salisbury
Dickerson & Co.....Salisbury
E. G. Davis.....Willards
Pocowico Manufacturing Co.....Willards
D. J. Elliott.....White Haven

BOXES AND CRATES.

The C. C. Lurssen's Sons Co....Baltimore
Canton Box Co.....Baltimore
H. D. Dreyer & Co.....Baltimore
J. H. Duker Box Co.....Baltimore
Charles Fortenbaugh .....Baltimore
H. F. Radecke & Sons.....Baltimore
J. H. Thiemeyer.....Baltimore
Acme Box Co.....Baltimore
Becker Brother & Son.....Baltimore
East Brooklyn Box Co.....Baltimore
Henry Louis .....Baltimore
United Trunk & Box Co.....Baltimore
J. C. Eichman Mfg. Co.....Baltimore
Wm. Suchling & Sons.....Baltimore
Reinle-Salmon Co. .....Baltimore
Reliable Furniture Mfg. Co.....Baltimore
J. T. Wright.....Cambridge
Cambridge Manufacturing Co....Cambridge
W. C. Muir & Co.....Crisfield
The A. B. Cochrane Co.....Crisfield
Crisfield Mfg. & Packing Co....Crisfield
Parker & Rowe.....Denton
G. T. Redden & Co.....Denton
Eden Manufacturing Co.....Eden

BOXES AND CRATES.—Cont.

Nanticoke Manufacturing Co....Federalsburg
R. E. Poole.....Federalsburg
Delmar Lumber Co.....Havre de Grace
G. A. Bounds & Co.....Hebron
G. A. Thompson & Son.....Hurlock
S. L. Webster & Son.....New Market
Asburton, Childs & King.....Pocomoke
Powelsville Manufacturing Co...Pocomoke
Phillips & Douglass.....Preston
The Cohen & Bock Co.....Princess Anne
Thomas L. Day, Swing & Co....Ridgeley
E. S. Adkins & Co.....Salisbury
L. E. Williams & Co.....Salisbury
Disheroon & Co.....Salisbury
D. J. Elliott.....Salisbury
Huston Sons Co.....Salisbury
The Corddry Co.....Snow Hill
Nanticoke Mills .....Vienna
Petey Manufacturing Co.....Whaleyville
W. C. Todd.....Williston

CIGAR BOXES.

Otto Begenzer .....Baltimore
George S. Feurst.....Baltimore
J. H. Henschen.....Baltimore
J. Henry Fisher.....Baltimore
K. Hendricks' Sons.....Baltimore
The C. C. Lurssen's Sons Co....Baltimore
John Lohr .....Hagerstown

COOPERAGE.

Frederick Albrecht .....Baltimore
W. G. Wackerhauser & Sons....Baltimore
Kimball-Tyler Co. .....Baltimore
Baltimore Cooperage Co.....Baltimore
The L. D. Rohrer Co.....Baltimore
Lynch & Shriver.....Girdletree
The Edwin Bell Co.....Hebron
C. Weisbrod & Sons.....Lutherville
W. C. Tarr.....Pocomoke
Bowen Lumber Co.....Showell
The Oysterman Barrel Co.....Stockton
D. J. Elliott.....White Haven
W. H. C. Kemp.....Williamsport

Digitized by Google

FURNITURE.

Hughes Furniture Mfg. Co.	Baltimore
Goldstrom Brothers	Baltimore
James McDonough & Co.	Baltimore
Henry Roesser & Son	Baltimore
Bagby Furniture Co.	Baltimore
D. Wilfson & Sons	Baltimore
M. Pimes & Co.	Baltimore
C. F. Meislahn & Co.	Baltimore
Monumental Carriage Factory	Baltimore
George Spindler	Baltimore
Potthast Brothers	Baltimore
Reliable Furniture Mfg. Co.	Baltimore
Levinson & Zenitz	Baltimore
Atlantic Furniture Co.	Baltimore
George Chipman & Son	Baltimore
A. Friedberg	Baltimore
John C. Knipp & Sons	Baltimore
Cumberland Furniture Co.	Cumberland
Easton Furniture Co.	Easton
Hagerstown Mantel & Furn. Co.	Hagerstown
Hagerstown Furniture Co.	Hagerstown
Main Furniture Co.	Hagerstown
Hagerstown Lounge Co.	Hagerstown
Brandt Cabinet Works	Hagerstown
Hagerstown Table Works	Hagerstown

HORSE VEHICLES.

W. H. Feldmeyer	Annapolis
Jacob H. Tracy	Antietam
Frank Dietz	Baltimore
Peters Wagon Works	Baltimore
Marr & Burggarf	Baltimore
William Bowers & Son	Baltimore
George W. Hubbard	Baltimore
Leonhardt Wagon Mfg. Co.	Baltimore
E. Lehnert & Sons	Baltimore
Herman Born & Sons	Baltimore
Baltimore Hub Factory	Baltimore
E. Stinson Manufacturing Co.	Baltimore
J. L. Brooks & Co.	Baltimore
Charles W. Berndt	Baltimore
Carl Soeperer's Sons	Baltimore
F. Winter & Son	Baltimore
Charles O. White	Baltimore
The Kunkel Wagon Co.	Baltimore
Charles A. Sefton	Baltimore
Nocki & Schmitt	Baltimore
F. W. Sandruck	Baltimore
William Poetter	Baltimore
F. Meyd & Brother	Baltimore
O. B. Stambaugh	Baltimore
John Stekel	Catonsville
Davis & Satterfield	Chestertown
J. T. Tracey	Cockeysville
J. W. Nock	Crisfield
Marion G. Anderson	Cumberland
Hagan Brothers	Frederick
J. Jacobs & Son	Gaithersburg
Hess Carriage Co.	Hagerstown
Hagerst'n Wagon & Carriage Co.	Hagerstown

HORSE VEHICLES.—Cont.

Burns Brothers	Havre de Grace
Shafer, Redmile & Co.	Kennedyville
E. W. Craumer	Pocomoke
B. W. B. Adkins & Sons	Salisbury
E. S. Adkins & Co.	Salisbury
Herr & Balzlon	Westminster

INTERIOR FINISH.

Farniholt-Meredith Co.	Annapolis
Joseph Thomas & Son	Baltimore
Baltimore Sash & Door Co.	Baltimore
Heise & Bruns Co.	Baltimore
M. Salmson Fly Screen Co.	Baltimore
Otto Duker & Co.	Baltimore
George Esselmann Co.	Baltimore
John C. Knipp & Sons	Baltimore
Hartsmeier Lumber Co.	Baltimore
F. A. Broadbent	Baltimore
George A. Staub	Baltimore
The National Mantel & Tile Co.	Baltimore
Lafayette Mill & Lumber Co.	Baltimore
John H. Geis & Co.	Brooklyn
E. J. Casey	Cambridge
J. T. Wright	Cambridge
Cambridge Manufacturing Co.	Cambridge
W. S. & A. M. Culp	Chestertown
The A. B. Cochrane Co.	Crisfield
Tawes & Gibson	Crisfield
Eastern Door & Sash Co.	Cumberland
South Cumberland Planing Mill	Cumberland
William D. Bowers Lumber Co.	Frederick
Wilcoxen & Brown	Frederick
F. G. Fox	Friendsville
Westside Lumber Co.	Hagerstown
Danzer Lumber Co.	Hagerstown
Beck Brothers	Hagerstown
H. L. Coffman & Co.	Hagerstown
George Sack & Sons	Lauraville
Joseph F. Neals	Leonardstown
William T. Sigler	Luke
C. M. Rathbun & Sons	Mt. Lake Park
Asburton, Childs & King	Pocomoke
Young & Son	Pocomoke
Phillips & Douglas	Preston
Princess Anne Milling Co.	Princess Anne
C. W. Smith & Son	Ridgeley
Morris Brothers	Salisbury
T. H. Mitchell	Salisbury
Jackson Brothers	Salisbury
Hutson Sons Co.	Salisbury
E. S. Adkins & Co.	Salisbury
Dickerson & Co.	Salisbury
L. E. Williams & Co.	Salisbury
The Corddry Co.	Snow Hill

MUSICAL INSTRUMENTS.

William Knabe	Baltimore
William Stehle	Baltimore
Adam Stein	Baltimore
M. P. Moller	Hagerstown

Digitized by Google

SHIPS AND BOATS.

Oliver Reeder & Sons.....Baltimore
Booz Brothers .....Baltimore
Spedden Shipbuilding Co.....Baltimore
The Nilson Yacht Building Co. Baltimore
Charles L. Rohde & Sons Co.....Baltimore
Charles S. Rossiter & Co.....Baltimore
J. L. Beachman & Brother.....Baltimore
William E. Woodall & Co.....Baltimore
Maryland Boat & Launch Works..Baltimore
Cambridge Manufacturing Co....Cambridge
George T. Johnson.....Cambridge
Webster-Richardson Car Marine Railway .....Cambridge
J. B. Nelson.....Crisfield
Charles A. Dana .....Crisfield
Canal Towage Co.....Cumberland
M. A. Minke.....Cumberland
Darlington Boat Works.....Darlington
J. Z. Tyler.....Dorchester
Henry Diebert Barge Bldg. Co..Elkton
E. Diebert & Brothers.....Elkton
Susquehanna Marine Works Co..Havre de Grace
James W. Brooks & Son.....Madison
Oxford Ship Building Co.....Oxford
E. James Tull.....Pocomoke City
L. A. Price.....Rock Point
M. M. Davis & Son.....Solomons
Salisbury Marine Railway Co....Salisbury
P. R. Smith.....South River
John Branford .....Upper Fairm't

SILOS AND TANKS.

Baltimore Cooperage Co.....Baltimore
John Eppler .....Baltimore
Economy Silo & Mfg. Co.....Frederick

STORE AND OFFICE FIXTURES.

Reinle-Salmon Co. .....Baltimore
M. L. Himmel & Son.....Baltimore
Oscar Hermann .....Baltimore

MISCELLANEOUS.

Jacob H. Tracy.....Antietam
William Suchting & Sons.....Baltimore

MISCELLANEOUS.—Cont.

The Steiner Mantel Co.....Baltimore
Fred Bergner & Co.....Baltimore
John Dittmar & Sons.....Baltimore
C. J. Dunn Co.....Baltimore
James Bates' Son.....Baltimore
Lafayette Mill & Lumber Co.....Baltimore
Sanford & Brooks Co.....Baltimore
Williamson Veneer Co.....Baltimore
J. C. Eichman.....Baltimore
Franke-Schwab Co. .....Baltimore
Henry R. Hall, Jr.....Baltimore
Walbrook Mill & Lumber Co....Baltimore
E. J. Codd Co.....Baltimore
Conrad Hamp & Co.....Baltimore
Furst Brothers & Co.....Baltimore
Carriage & Toy Co.....Baltimore
United Trunk & Box Co.....Baltimore
Kanawha Pump Works.....Baltimore
Baltimore Hub Factory.....Baltimore
George Esselmann Co.....Baltimore
Geo. A. Staub.....Beallsville
The Brunswick Furniture Co....Brunswick
J. R. Stewart.....Cambridge
J. T. Wright.....Cambridge
Cambridge Manufacturing Co....Cambridge
Tawes & Gibson.....Crisfield
F. Merten's Sons.....Cumberland
Wilcoxon & Brown.....Frederick
The Ox Fiber Brush Co.....Frederick
W. J. Valentine.....Hagerstown
Jones Cold Store Door Co.....Hagerstown
L. H. Wiebel.....Hagerstown
H. L. Coffman & Co.....Hagerstown
Hagerstown Wooden Ware Mfg. Co. .....Hagerstown
S. C. Johnson & Co.....Henderson
Somerset Lumber Co.....Princess Anne
Princess Anne Milling Co.....Princess Anne
The Cohen & Bock Co.....Princess Anne
C. C. Ricards.....Ridge
D. J. Elliott.....Salisbury
Huston Sons Co.....Salisbury
Poco Wico Manufacturing Co....Willards
E. G. Davis.....Willards

Digitized by Google

Digitized by Google

MARYLAND'S LUMBER AND TIMBER CUT AND THE TIMBER SUPPLY

BY

F. W. BESLEY, STATE FORESTER

Digitized by Google

Digitized by Google

MARYLAND'S LUMBER AND TIMBER CUT AND THE TIMBER SUPPLY.

The foregoing report upon the "Wood-Using Industries" of the State shows the kinds, amounts, and prevailing prices of wood material used. This information should be of great value both to the grower and consumer of wood products. In the following chapter it is proposed to supplement that report with recently acquired facts concerning (1) the present lumber and timber cut of the State; (2) the timber resources, and (3) the relation of the present stand of timber to the demand. Such information should be of special value to the wood user as showing him to what extent he may reasonably expect to depend upon the local supply for the future. With the county forest maps soon to be published by the State Board of Forestry, he may definitely locate the timbered areas from which he might secure suitable material.

It has been shown that in 1909 over 284,000,000 feet, board measure, of rough lumber was converted into manufactured wood products in the State. This does not include the lumber brought into the State in its finished form, or that used in rough construction, which would at least double the quantity given. Of the total amount of the lumber, the Maryland sawmills furnished in 1908 approximately 240,000,000 feet, board measure. Maryland is, therefore, a large importer of lumber, notwithstanding the fact that 35 per cent of the land area of the State is wooded and the climate and soil conditions are exceptionally well adapted for good timber growth. It is evident that present conditions can not continue for any length of time since the Southern forests are being rapidly depleted of their surplus timber and the only other large source of supply is the Pacific Coast which, because of the high freight charges, can not be expected to lessen the difficulty materially. In short, the State must eventually furnish nearly all the common grades that are used, and will import from a distance only such material as can not be grown here.

Digitized by Google

TABLE I.—*Cut of Lumber, Lath, and Shingles for 1908.*

County.	No. of mills.	Lumber.				Lath.		Shingles.	
		Hardwood. M bd. ft.	Pine. M bd. ft.	Total. M bd. ft.	Total value.	Thousands.	Value.	Thousands.	Value.
Allegany	32	8,709	6,474	15,183	$232,708	1,411	$4,487	5,500	$2,080
Anne Arundel	22	2,600	1,415	4,015	63,260	.....	.....	375	1,460
Baltimore	44	6,627	120	6,747	119,401	88	280	1,000	4,160
Calvert	16	2,900	2,350	5,250	79,220	.....	.....	100	416
Caroline	57	3,656	13,042	16,698	221,581	413	1,313	289	1,202
Carroll	8	2,400	.....	2,400	42,720	.....	.....	200	832
Charles	15	2,000	2,900	4,900	70,400	100	318	400	1,664
Cecil	7	1,500	500	2,000	32,700	.....	.....	200	832
Dorchester	49	2,231	14,942	17,173	219,015	525	1,669	50	208
Frederick	43	6,483	634	7,117	123,005	1,807	5,746	7,792	32,414
Garrett	70	47,753	11,367	59,120	986,407	2,457	7,814	1,190	4,950
Harford	19	4,511	30	4,541	80,656	145	461	640	2,662
Howard	12	1,884	93	1,977	34,651	.....	.....	1,068	4,443
Kent	11	1,240	220	1,460	24,712	.....	.....	100	416
Montgomery	45	8,835	227	9,112	160,587	1,528	4,859	4,206	17,497
Prince George's	20	4,322	1,081	5,403	89,904	125	398	153	636
Queen Anne's	8	780	2,352	3,132	42,108	.....	.....	200	832
St. Mary's	30	3,000	3,570	6,570	96,240	200	636	200	832
Somerset	41	2,931	10,532	13,463	178,556	65	207	50	208
Talbot	33	2,067	3,225	5,292	75,493	120	382	50	208
Washington	23	1,459	7,292	8,751	113,474	1,400	4,452	900	3,744
Wicomico	41	1,677	18,680	20,357	254,012	705	2,242	200	832
Worcester	44	1,500	18,500	20,000	248,700	1,240	3,943	500	2,080
Total	690	121,065	119,596	240,661	$3,590,110	12,329	$39,207	20,363	$84,608

Digitized by Google

LUMBER AND TIMBER CUT.

The lumber and timber cut of the State was made the subject of a special study by counties during the seasons of 1908 and 1909 to determine, as nearly as possible, the amount of forest products of all kinds that are annually taken from our forests. Most of the sawmills of the State are of the portable class which, as a rule, do not run continuously throughout the year, but usually suspend operations during the summer season when work on the farms is more urgent. The summary given in Table I shows the cut of lumber, lath, and shingles by counties for 1908, representing the cut of 690 mills.*

Under the cut of pine is included some hemlock and a little spruce in the mountain counties, and a little cypress in Wicomico and Worcester counties; but pine constitutes 80 per cent of the cut of conifers. The hardwood cut consists of about 60 per cent of oak of the various species, 20 per cent of chestnut, and a great variety of other species of which maple, yellow poplar, hickory, red gum, and beech are the most important. The average value per thousand feet board measure for the different kinds of undressed lumber at the mills was about as follows: yellow pine, $11.50; oak, $18.50, and chestnut, $14.50.

Lath is made principally from pine, but a number of the softer hardwoods are also used. The average price at the point of production is $3.18 per thousand.

Shingles are made in the central part of the State almost exclusively from chestnut. In other sections where chestnut is less abundant, a variety of woods is used, principally pine, yellow poplar, and cypress. The average price is $4.16 per thousand feet at the mills.

TIMBER AND WOOD CONSUMPTION FOR 1908.

Outside of the sawmill products, immense quantities of timber and wood are utilized for various purposes, chiefly for railroad ties, piling, poles, mine props, cordwood, pulpwood, charcoal, and tanbark. The bulk of this material is handled by a large number of small operators who do not make it their principal business, but get out this class of material in connection with other operations, or as in the case of railroad ties and cordwood, much of it is gotten out by farmers during the winter months. Complete data was unobtainable, but a careful estimate, supported by a large amount of data, is submitted.

* The cut of 384 mills reported by the Bureau of the Census for 1908 was taken as a basis, and this cut supplemented by 306 mills not reporting to the Census, makes the full report.

Digitized by Google

Digitized by Google